

Amateur Radio



VOL 54, No 5, MAY 1986

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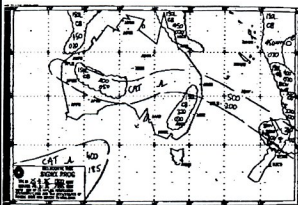
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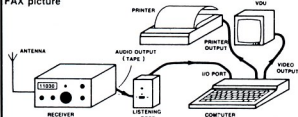
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Regular Features

Advertisers' Index	64
ALARA — A look at the life of Florence McKenzie	46
AMSAT Australia	44
AR Showcase	
— Amateur Radio Tour	48
— Frequency Lists for SWLs	48
— Intelligent Gang Programmer	48
Awards	
— Asian Games Award	43
— Australian Awards Updates	43
— Australian DXCC Updates	43
— BARTG Awards	43
— Frankston & Mornington Peninsula ARC Anniversary Award	43
Club Corner	52
Contests	
— Amateur Radio Direction Finding Championships	41
— Aradillo Hunt	40
— County Riders SSB Contest	40
— Voice Contest Results for 1986	41
Editor's Comment — From Our Files	46
Education Notes	3
Equipment Review — MASPRO Antenna's WHS32	42
Five-Eighth Wave	57
Forward Bias	55
Hamads	36
How's DX	36
Intruder Watch	51
Isonospheric Predictions	63
Listening Around	63
Obituaries — Albert Durose; Harold Fisher; Albert Poelstra & Vern Blackmore	62
Over to you! — members have their say	51
Pounding Brass	51
QSP	
6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62	
Radio Amateur Old Timers Club	47
Silent Keys — VK5NAB; VK5VB; VK3DUR; VK5EX & VK4JAB	62
Solar Geophysical Summary	62
Spotlight on SWLING	50
Thumbnail Sketches	
— Frank Nolan VK4JU	15
— Val McDowall 4CM	3
VHF UHF — an expanding world	32
VK2 Mini Bulletin	54
VK3 WIA Notes	55
VK4 WIA Notes	55

6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

Radio Amateur Old Timers Club

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

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Solar Geophysical Summary

Spotlight on SWLING

Thumbnail Sketches

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

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Thumbnail Sketches

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VHF UHF — an expanding world

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

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VHF UHF — an expanding world

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

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Spotlight on SWLING

Thumbnail Sketches

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Solar Geophysical Summary

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VHF UHF — an expanding world

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

Radio Amateur Old Timers Club

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Solar Geophysical Summary

Spotlight on SWLING

Thumbnail Sketches

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VHF UHF — an expanding world

VK2 Mini Bulletin

VK3 WIA Notes

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6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

Radio Amateur Old Timers Club

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Solar Geophysical Summary

Spotlight on SWLING

Thumbnail Sketches

— Frank Nolan VK4JU

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VHF UHF — an expanding world

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VK3 WIA Notes

VK4 WIA Notes

6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

Radio Amateur Old Timers Club

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Solar Geophysical Summary

Spotlight on SWLING

Thumbnail Sketches

— Frank Nolan VK4JU

— Val McDowall 4CM

VHF UHF — an expanding world

VK2 Mini Bulletin

VK3 WIA Notes

VK4 WIA Notes

6, 21, 24, 28, 31, 41, 45, 48, 51, 53, 55, 61, 62

Radio Amateur Old Timers Club

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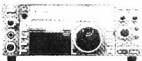
Solar Geophysical Summary

Spotlight on SWLING

Thumbnail Sketches

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EMTRONICS



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Alan Shaws Smith VK4SS
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VAL MCDOWALL 4CM (SK) Active 1919-1939

The name of Doctor V McDowall 4CM, constantly appears in the records of early wireless pioneers in the Sunshine State, firstly around 1907 and continuing through to WWII. In spite of this, much of his work and many of his achievements do not seem to have been officially recorded — or, if they were, the process of time has washed them into oblivion.

Doctor V McDowall was a humane man, highly creative and generous to the point of philanthropy. His somewhat retiring nature and professional ethics kept him from seeking the limelight. Another person of similar talents, with entrepreneurial instincts, would have unquestionably been prominent among his peers — instead, Doctor Val preferred to pursue his experiments without any desire for kudos.

He came from one of VK4's outstanding families, his father Mr A McDowall was the Surveyor General of Queensland during the 1880s. After taking his MD in the early 1900s, Val first turned his attention to the X-ray spectrum. He successfully home-brewed an X-ray machine and associated equipment (an outstanding achievement for a young man still in his 20s) and was one of the first of his profession to use radium therapy in VK4.

After WWI, he moved from the country-town of Laidley to Brisbane and set-up a practice at Parbury House, Queen Street, City. Here he met a young man bursting with ambition and ideas, viz Thomas M B Elliott (see Tom's abbreviated biography in AR, November 1985). The ensuing association typifies perfectly the Doctor's generous and supportive nature. Tom was full of schemes and energy, but lacked the financial support needed for his research. Val 4CM, provided him with a very fine place in which to work, assisted with the purchase of equipment and employed him as a radiographer. Without his benefactor's help, it is quite probable that T M B Elliott's name would not be remembered as it is today.

Together they successfully constructed a Broadcast Station using the call sign 4CM, at Preston House, Queen Street, Brisbane. The



transmissions were heard throughout eastern Australia and out into the Pacific. To commemorate their achievements, a plaque is now set in the vestibule of this building from whence these *First Sound Broadcasts* in VK4 originated. The claim *first* has been disputed — but rightly or wrongly — the credit for this feat has gone to these two experimenters.

In 1926, Doctor Val (now married), went to the USA for a six months' holiday with his family. As well as lecturing on the state of the wireless art in Australia, he investigated the progress of television experimentation and kept scheds with Tom Elliott in the hope of creating the first USA/VK4 QSOs. No records can be found to say if this latter was accomplished.

During 1927, Tom Elliott moved Broadcast Station 4CM from Preston House to the Windmill or Observatory Tower on Wickham Terrace, which Val had leased. (It is of passing interest to note here that the man who assisted Tom in making this change of QTH was Harry Angel VK4HA. At 95-years of age, Harry is still working DX on SSB in a clear, short voice. He appears to be Australia's oldest on-air amateur.)

A year later, Doctor Val McDowall, now a Specialist Radiologist, joined Tom in experimental work in the Tower, with the object of investigating the possibility of setting up a television station. This joint field of endeavour produced their best work, climaxing in the transmission of the *First Television* pictures in Queensland. These were claimed by some as the best in Australia, with the widest DX coverage — approximately 100 miles (160 km). This was October 1935.

It was inevitable that the success of their work would become known abroad. Because of this, anecdotal sources have it that they were honoured by a visit to the Tower from John Logie Baird, the great English television pioneer. (Date of visit unknown.)

In the later 1930s, the association between Val and Tom appears to have loosened and the Doctor returned to his work in Radiology. At the outbreak of WWII, he joined the Army and was asked to set-up a hospital on the Darling Downs, Queensland. On completion of this task he returned to Brisbane to manage what was virtually three separate medical practices, his own and those of two of his colleagues away on active service. This great work load caused his health to deteriorate and he did little further experimental work in X-ray, television or radio. His call sign 4CM was not renewed after the war.

A letter from his daughter Joan, provides the interesting information that in her view, her father did not receive the print media publicity he rightly deserved. Allegedly, he refused a request by a local newspaper to relinquish his call, for their use, as they wanted a broadcasting outlet.

When time allowed, the Doctor indulged in the following interests: firework making, rowing, boating, big-game fishing, furniture making, photography and flying (licensed pilot at the age of 55-years). His knowledge and research into the display of fireworks was outstanding and caused him to be in demand for many big occasions. While relaxing aboard his elegant yacht, MAKO he conducted many DX radio experiments.

Doctor Val McDowall became a Silent Key in October 1957 at the age of 76 and he is survived by a son and a daughter.



Editor's Comment

From Our Files

As the May deadline approached (in mid-March) it occurred to your Editor that a search of the published wisdom of past Editors might provide inspiration towards another monthly masterpiece, literary jewel, piece of trivia, or monotonous waste of space (choose your own description as seems appropriate). The results were interesting.

There have been nine Editors of this magazine since 1941. The first was Tom Hogan VK3HX, (now a Silent Key) who held the reins for an incredible 15 years until 1956. Kel Cocking VK3ZFQ (1960-66) and Bruce Bathols VK3UV (1977-83) each survived the chair for six years, while Ken Pincott VK3AFJ (1966-71) and Bill Roper VK3ARZ (1972-77) each contributed five years of their lives to the cause. Others only lasted for one or two years. But one of the latter was Ron Higginbotham VK3RN (Editor 1958-60), and his two years as Editor do even suggest how great was his contribution to the magazine. In fact, from 1949 to 1973, Ron was effectively the production typesetter and printer of *Amateur Radio*, even though he retired from the Publication Committee in 1964.

Until that time there had been an *Editor's Award* for the best technical article each year, but with Ron's resignation it was decided to rename it the *Higginbotham Award*. In 1965, its scope was broadened to include *meritorious service towards amateur radio*, and the first recipient was the late (and long lamented) Warwick W (Pansy) Parsons VK3PS. So that is the origin of one of our awards, of which mention was made last month. Over the next few months we hope similarly to dig out the stories of the Technical and Alan Shaws Smith Journalistic Awards. The Ron Wilkinson Achievement Award was covered in a separate article last month.

Another interesting fact to emerge was that rarely before 1983, did an Editor of AR actually write an Editorial! This is not to detract from their contribution to the work of bringing you a magazine each month. In fact, there were numerous periods between 1973 and 1982 when the Editor and others were deeply involved with the *nitty-gritty* of production, now handled with great competence by Betken Productions. For many years the Main QSP, effectively the Editorial, was provided by a somewhat faceless *Federal Executive*. But in 1983, Gil Sones VK3AUJ, began the custom of a real monthly Editorial, written and signed by the Editor; and your present Editor, much to his joy, has now completed another!

Bill Rice VK3ABP
Editor
AR

Although a rare bird, there are very few active amateurs world-wide who have not heard of it...

A Bird in the Hand-

Bob Roper VK5PU
Georgia Tech, Atlanta, Georgia, USA. 30332

Even though this is a very rare bird (there are believed to be only three or four extant), there is hardly an amateur alive world-wide who has not heard its call. There are reports of sightings, but these have usually been second-hand, and hard to verify. To the writers knowledge, the photographs of the Russian Woodpecker presented here are the first to be published outside of the Soviet Union. I took them at the Russians' invitation, while attending a symposium in Dushanbe, Tajicistan, as a guest of the Soviet Academy of Sciences.

The Gorisont or Horizon Radar located at the Astrophysical Observatory of the Lenin Tajic State University in Dushanbe, Tajicistan (38 degrees north, 69 degrees east) is a research

tool used primarily to further knowledge of ionospheric propagation; it obviously has potential for use as an Over The Horizon Radar (OTHR). It is used routinely to observe backscatter at ranges from 2 000 to 4 000 kilometres and beyond.

The most spectacular portions of this system are the transmitting and receiving antennas (see photographs). They are identical, and are spaced several hundred metres apart. On one side of the reflecting screen, which is 75 metres long and 20 metres high, are 16 four element Yagis (driven element plus three directors) on 20 MHz. These are mounted in two bays, eight-over-eight, each bay separately fed, so that they can be phased to vary the beam elevation angle. On the back of the reflector screen is an array of broadband dipoles, covering from 15 to 30 MHz. Each array is mounted on a circular track, and can be rotated continuously in azimuth.

The Yagi antenna system gain at 20 MHz is in excess of 20dB, and, when driven by a 100kW pulse transmitter produces a signal with an obvious potential for world-wide reception. The broadband dipole array has appreciable gain from 14 to 30 MHz. Echo range versus azimuth is displayed on the plan position indicator CRT which is visible at the bottom left of Figure 2, as is the A scan at the upper left, and the recording camera display (centre).

OTHER SYSTEMS

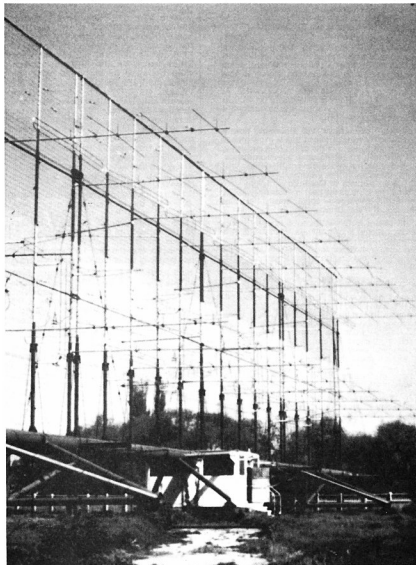
Of course, the Soviet Union is not alone in its interest in, and use of OTHR. An excellent article by O G Villard on experiments in the US was published in QST in April 1980, and one on the HF radar installation near Alice Springs in Australia by Ian Hunt in Amateur Radio for April 1985. These radars do not produce interference in the same manner as the Soviet systems, since they use, among other techniques, spread spectrum to minimise radiation on any given frequency.

In addition to using the Horizon Radar, propagation experiments at the Astrophysical Observatory in Dushanbe are carried out with a conventional ionosonde (Figures 3 and 4), which also has a magnificent antenna system, this time fixed (Figure 5), but which can be phased for oblique sounding. An array of 12 11 element Yagis, steerable in both azimuth and elevation (Figure 6), is used for satellite tracking. Signals from Soviet launched satellites have been used in determining the polar diagrams of the various antenna systems used in their propagation and other experiments.

The above notwithstanding, the Astrophysical Observatory's reputation lies not in the field of radio propagation, but in the observation of comets and meteors. A large array of telescopic cameras is set up to photograph all of the night sky above an elevation angle of some 20 degrees. These cameras are operated continuously on clear nights, routinely recording meteor trails, and known and possibly new comets and asteroids. Spectrophotometers also record the spectra of the brighter meteors, giving clues as to their chemical composition.

Of more interest to radio amateurs, and VHFers in particular, are the radio meteor

The transmitting antenna of the GORISONT or Horizon Radar of the Astrophysical Observatory of the Lenin Tajic State University in Dushanbe, Tajicistan (34 degrees north, 60 degrees east).



SYMPOSIUM

The Observatory is a prime contributor to GLOBMET, the Global Meteor Observations Systems of Special Committee on Solar/Terrestrial Physics of the International Council of Scientific Unions, and the occasion of taking these photographs was the first GLOBMET Symposium, held in Dushanbe from 19-24th August 1985, under the auspices of the Soviet Geophysical Committee of the Academy of Sciences of the USSR, the Tajic Academy of Sciences and the Astrophysical Observatory. At this symposium, over 70 presentations were made on subjects ranging from the technical descriptions of meteor radars, to the photographic observations of fireballs, the use of VHF Stratosphere/Troposphere (S/T) wind profilers as meteor radars (VHF S/T radars provide continuous wind profiles throughout the troposphere and into the lower stratosphere by tracking the always present inhomogeneities in refractive index of the atmosphere due to atmospheric turbulence, which also provides the mechanism for tropospheric forward scatter) to the detailed analysis and interpretation of mesopause level winds as determined from meteor echo data, and the relationship of meteor streams to cometary orbits, such as the Eta Aquarids and Orionids to Halley's Comet.

Figure 1 — The back of the transmitting antenna, showing the broadband dipoles.

observations. In addition to determining meteor orbits from a three station recording system, winds in the height range from 80 to 100 kilometres are determined by tracking the ionised trail created by the meteor, as the trail is blown along by the wind. Two antenna arrays at right angles, pointed at an elevation angle of 45 degrees (Figure 7) are used to determine the north-south and east-west wind components as deduced from the line-of-sight drifts of the meteor trails.

While computers are used in data analysis, most of the equipment at the Astrophysical Observatory utilises the technology of the late-50s. This does not detract at all from the successful operation of their systems — it just makes it more labour intensive, and there is no lack of qualified labour available. The fact that they use tubes is no problem, in that the USSR still produces plenty of them; tubes might even be an advantage, since they are not susceptible to EMP!

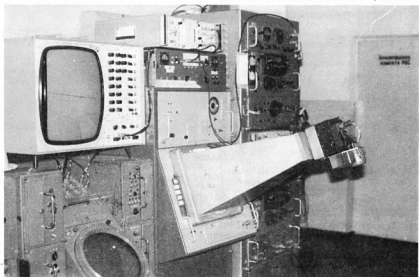


Figure 2 — The receiver/display console, with a conventional A scan CRT at the upper left, plan position indicator (azimuth and range) below, and the recording camera in the centre.

In addition to scientists from the Soviet Union, representatives of nine other nations were present, including eight from the USA who received travel support from the Atmospheric Research Section of the National Science Foundation. The Symposium was an unqualified success, based in no small measure on the fact that the international community of scientists is imbued with the same spirit of co-operation found in the international amateur radio community; what a pity more of the world's politicians are not scientists and amateur radio enthusiasts!

AR

Figure 4 — The ionosonde recording rack.

Please turn the page

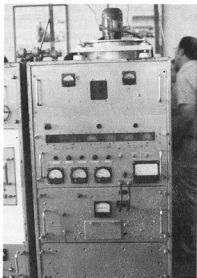


Figure 3 — The Ionosonde transmitter.

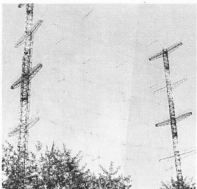


Figure 5 — The Ionosonde antenna.

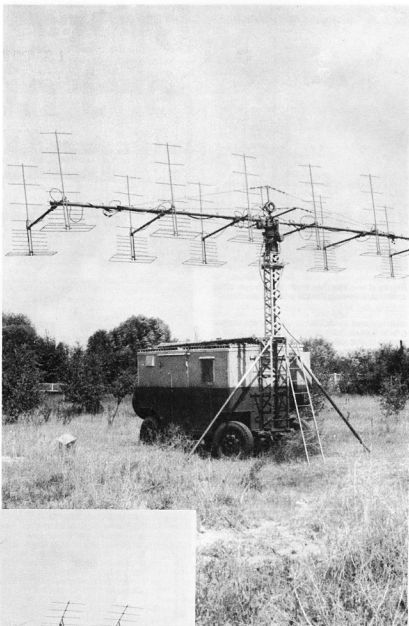


Figure 6 — The satellite tracking antenna and trailer.

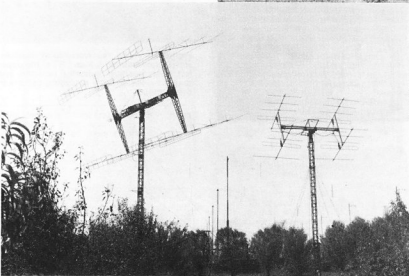


Figure 7 — The meteor wind radar antennas.

NEW SATELLITE SERVICE

The Overseas Telecommunications Commission (OTC) is to introduce a new satellite communications service to link computers internationally.

Known as Satnet III it enables subscribers to retrieve data from host computers around the world. The small dish system will use the Intelsat V satellite and is particularly suited to organisations that wish to link geographically dispersed locations.

Users are expected to include businesses involved in retail; travel; insurance; finance; banking; mining and off-shore exploration.

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- * SR208FD, 2m 8el, 3.6m boom, f/dipole, 11dBd — was \$299 now \$149
- * 208GR, 2m 8el, 3.6m boom, f/dipole, g/refl, 12.5dBd — was \$329 now \$169
- * 7011GR, 70cm 11el, 1.5 boom, f/dipole, g/refl, 14dBd — was \$179 now \$99
- * 7018GR, 70cm, 18el, 3m boom, f/dipole, g/refl, 16.4dBd — was \$229 now \$169

- * 604Y, 6m 4el, 3.6m boom, gamma matched — was \$199 now \$89
- * HD-101103, 10m 3el, 3.6m, gamma, heavy duty — was \$199 now \$69
- * HD-101104, 10m 4el, 5.4m, gamma, heavy duty — was \$239 now \$109
- * HD-101105, 10m 5el, 7.2m, gamma, heavy duty — was \$279 now \$129
- * VQ2V, 10m 2el, 1.8m, gamma matched, "V" quad — was \$149 now \$79
- * V27/NATION BLASTER 10/11 vertical, 5.4m tall — was \$89 now \$29
- * Why pay over \$29 for a high quality 1/2 wave vertical?
- * 477 MHz G2 — series maximum performance beams on sale, too.
- * 477-20GR, 20el, 3m boom, 477 MHz, f/dipole — was \$249 now \$149
- * 477-12GR, 12el, 1.5m boom, 477 MHz, f/dipole — was \$199 now \$99
- * KENPRO ROTATORS IN STOCK. KR-40ORC \$289; KR-60ORC \$389; KR-500 (elevation) \$289. 6-core cable \$1/m. Top & bottom clamps included.

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- PBT, notch, NB, AM filter
- * IC-3200A \$749, BONUS.
- * PS-55 AC Supply \$345
- * AT-150 Auto-tuner \$595

RRP \$1554
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\$1445 inc m/c
BONUS 10m
3el Yagi or
V27 and
one HF
Helical Whip



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HL-2K



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+ lead assy \$39

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- HC-2000 w/4pos sw, 2 kWPOA

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- 550W o/p. Full 550W carrier c/p for one minute, try that with another 1 kW 1/p linear!
- 500W plate dissipation (not 300W), 160-10m + WARC\$1295
- HL-2K (picture above) uses a pair of 3-500Zs for 2 kW 1/p, 1200W o/p. 160-10m plus WARC. Large meters indicate RF power o/p, Ig, Ip, Ep. 30% greater volume plate transformer for heavier duty operation\$2195
- HL-3K, 3kW 1/p, 1.8 kW o/p, indant, POA.

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- 100 channel memory etc

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FT-209R, 3.5W 2m h/h, w/FNB.4, chgr, c/case, whip\$449

FC-77AT Auto-Tuner 160-10m w/tuning memory\$439

FC-700, Mobile-Tuner, 150/15W meter, 150W dummy load\$229

FT-757GX, HF, 100W tcvr, BONUS 3el 10m Yagi or V27 + helical\$1345

FT-270(R)H, 45/5W 2m FM mobile, BONUS 5el Yagi\$879 \$699

FT-726(R), 10W AC/DC all-mode tcvr w/10ch memory w/2m\$1499

w/Bonus 8el 2m Yagi. 6m module \$360 (BONUS 4el Yagi, when sold with FT-726), 70cm module \$460 (BONUS 7011GR when sold w/FT-726)



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BASIC ANTENNA AND

Fred Robertson-Mudie VK1MM
Box E46, Queen Victoria Terrace, ACT. 2600

This program is intended as a basic primer for antenna and feedline design, and to act as a handy ready-reference source on antenna and related information.

As can be seen from the menu (lines 220-370), the program covers the more common amateur antennas and, in the case of options A, B, D, E, G, H and I, the program will provide optimum dimensions, feed-point impedance, gain etc for the nominated frequency. Options C and F give further details for the design of Yagis and dipoles respectively. Option J gives dimensions and required capacitance for a Gamma Match at the nominated frequency. Option K allows for the calculation

of the impedance of unmarked and unknown coaxial cable (such as the assorted lengths in the corner of your shack). Option L allows for the design, or checking, of open wire feeders to provide particular impedances. Option M gives coaxial cable data for some of the more common types used by amateurs. Option N is a Standard Wire Gauge table and finally, Option O is for conversion to wavelength, and vice-versa, frequency.

All the above material is fairly standard and can be found in a variety of amateur antenna books thus, the program merely acts as an easy way of providing initial designs, dimen-

sions, etc. In addition, if the formulae used in the program are not a particular individuals preferred ones, they can be simply changed.

The program is written for the Amstrad CPC464, which uses Locomotive Basic (a variety of Microsoft Basic), it should therefore be easily converted to run on a range of the more popular home computers. If the thought of typing in the program (it is 19k long) is a bit daunting, I will be happy to make copies of it for any WIA members provided I am supplied with a blank tape or disc, a self-addressed suitable package to return it in and, of course, either pre-stamped or with sufficient funds to cover the postage costs.

AR

```

10 REM *****
20 REM * ANTENNA & FEEDLINE *
30 REM * DESIGN PRIMER *
40 REM *****
50 REM
60 REM GO VLHMM
70 REM
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90 REM
100 REM
110 REM
120 REM
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990 REM

```

```

870 LOCATE 10,1:PRINT"Director":LOCATE 29,1:PRINT H "F"
880 PEN 1
890 FOR x=10 TO 30:LOCATE x,2:PRINT CHR$(210):NEXT
900 FOR y=10 TO 21:PRINT TAB$(200-CH$(149)):NEXT
910 FOR x=17 TO 30:LOCATE x,12:PRINT CHR$(154):NEXT
920 FOR y=16 TO 40:LOCATE y,22:PRINT CHR$(200):NEXT
930 PEN 2
940 LOCATE 10,11:PRINT"Driven":LOCATE 29,11:PRINT D "F"
950 LOCATE 18,21:PRINT"Reflector":LOCATE 29,21:PRINT R "F"
960 PEN 1
970 LOCATE 20,12:PRINT CHR$(159)
980 PEN 2
990 LOCATE 29,6:PRINT"Spacing":LOCATE 29,7:PRINT S "F"
1000 LOCATE 30,16:PRINT"Boom":LOCATE 30,17:PRINT L "F"
1010 PEN 1
1020 LOCATE 1,1:PRINT"VF YAGI DESIGN":LOCATE 1,2:PRINT"*****"
1030 PEN 1
1040 LOCATE 1,4:PRINT"Form F"
1050 PEN 1
1060 LOCATE 1,6:PRINT"Dimensions are":LOCATE 1,7:PRINT"optimum for":LOCATE 1,8:PRINT"max gain and":LOCATE 1,9:PRINT"max F/B ratio."
1070 LOCATE 1,12:PRINT"Z = 20-35*CH$(191):LOCATE 1,13:PRINT"F/B ratio":LOCATE 1,14:PRINT"= 2500/LOCATE 1,15:PRINT"Gain = 7.5d"
1080 PEN 1
1090 LOCATE 5,10:PRINT"1.75,10,10"
1100 LOCATE 15,24:INPUT "Now Y/N":if b=CH$(100) then
1110 if a="" then THEN 700
1120 if b="n" THEN 190
1130 REM
1140 REM
1150 REM
1160 REM
1170 REM
1180 REM
1190 REM
1200 LOCATE 5,10:PRINT"what is the operating frequency"
1210 SOUND 1,75,10,10
1220 LOCATE 15,12:INPUT "In MHz?"
1230 IF F <= 40 THEN 700
1240 L=ROUND(1230/F,2):H=ROUND(5800/F,2):D=ROUND(5600/F,2):B=ROUND(5320/F,2):L=L/2
1250
1260 CLS
1270 LOCATE 10,1:PRINT"Director":LOCATE 29,1:PRINT H "ins"
1270 PEN 1
1280 FOR x=10 TO 30:LOCATE x,2:PRINT CHR$(210):NEXT
1290 FOR y=10 TO 21:PRINT TAB$(200-CH$(149)):NEXT
1300 FOR x=17 TO 30:LOCATE x,12:PRINT CHR$(154):NEXT
1310 FOR y=16 TO 40:LOCATE y,22:PRINT CHR$(200):NEXT
1320 PEN 2
1330 LOCATE 10,11:PRINT"Driven":LOCATE 29,11:PRINT S "ins"
1340 LOCATE 18,21:PRINT"Reflector":LOCATE 29,21:PRINT R "ins"
1350 PEN 1
1360 LOCATE 20,12:PRINT CHR$(159)
1370 PEN 2
1380 LOCATE 29,6:PRINT"Spacing":LOCATE 29,7:PRINT S "ins"
1390 LOCATE 30,16:PRINT"Boom":LOCATE 30,17:PRINT L "ins"
1400 PEN 1
1410 LOCATE 1,1:PRINT"VF YAGI DESIGN":LOCATE 1,2:PRINT"*****"
1420 PEN 1
1430 LOCATE 1,4:PRINT"Form F"
1440 PEN 1
1450 LOCATE 1,6:PRINT"Dimensions are":LOCATE 1,7:PRINT"optimum for":LOCATE 1,8:PRINT"max gain and":LOCATE 1,9:PRINT"max F/B ratio."
1460 LOCATE 1,14:PRINT"Z = 20-35*CH$(191)
1470 LOCATE 1,15:PRINT"F/B ratio":LOCATE 1,16:PRINT"= 2500/LOCATE 1,17:PRINT"Gain = 7.5d"
1480 PEN 1
1490 SOUND 1,75,10,10
1500 LOCATE 15,12:INPUT "Now Y/N":if
1510 if a="" then THEN 700
1520 if b="n" THEN 190
1530 if c="" THEN 190
1540 REM
1550 REM
1560 REM
1570 REM
1580 REM
1590 REM
1600 REM
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1620 REM
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1660 REM
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```


COMPUTER CONTESTS

Joe Kasser G3ZCZ
Ramot 9/6, Jerusalem, Israel

Figure 1 — Contest.

```

10 ON ERROR GOTO 950
20 @="G3ZCZ:CONTEST LOGGING PROGRAM VERSION 1.95":CLS:WIDTH 80:LOCATE 10,1:PRINT @
30 BANDS=7:HF=40000:BIT=WA(PI),F(PI),B(BANDS),B1(BANDS):B1B="00":B1M="50":C="?"
40 BLANK=" "
50 C$="XNXCXCFI/0?":L0B=BLANK:G$B="":G$B=0$B:0$B=010:L1B=L0B:L2B=L0B:L3B=L0B:L4B=L0B
60 L5B=L0B:L6B=L0B:L7B=L0B:L8B=L0B:L9B=L0B:L10B=L0B:L11B=L0B:L12B=L0B:L13B=L0B:L14B=L0B
70 FOR IS=1 TO BANDS:READ B1$1:NEXT:DATA 1,4,16,64,256,1024,4096
80 FOR IS=1 TO BANDS:READ B1$1:NEXT:DATA 10,15,20,40,90,160,2
90 LOCATE 12,1:INPUT "Enter name of LOG file (BNAME) Log type .LON Assumed ",L$:IF L$="" THEN 90
100 GOSUB 800
110 OPEN L$+".LOG" FOR OUTPUT AS #2
120 OPEN L$+".LOG" FOR INPUT AS #1:GOTO 140
130 F$US1=0:G$US1=0:G$US2=0:G$US3=0:G$US4=0:G$US5=0
140 LOCATE 22,1:PRINT "LOADING LAST ENTRY STRINGS:"OPEN L$+".CHK" FOR INPUT AS #3
150 INPUT$=L1B,L2B,L3B,L4B,L5B,L6B,L7B,L8B,L9B,L10B,L11B,L12B,L13B,L14B:CLOSE#3
160 PRINT "OPENING LOGBOOK ":L$:GOTO 40
170 IF EOF(1) THEN GOSUB 450:INPUT "Waiting, touch enter to continue ":L$:GOTO 800
180 INPUT$=B1B,T$B,C$B,H$B,S$B,P$B,Q$B,R$B,X$B:PRINT M$,C$,X$:IF C$="F" THEN M$=M$+1 ELSE M$=M$+1
190 GOSUB 270:W$1(1)=C$:F$=VAL(W$1):FOR W$=1 TO BANDS:IF INT(F$)=C$G$: THEN F1(1)=F1(1)+B1$1:W$1=G$US1
200 NEXT
210 PRINT$=B1$1,"I1$:",B1$1,"C1$:",B1$1,"I1$:",B1$1,"P1$:",B1$1,"Q1$:",B1$1,"R1$:",B1$1,"X1$":GOTO 170
220 LOCATE 20,1:PRINT BLANK:LOCATE 20,1:RETURN
230 L0B=H$B:M$1(L0B,4)=B$B:H$B(L0B,1)=T$B:H$B(L0B,20)=C$B:H$B(L0B,32)=B$B:H$B(L0B,36)=H$B:H$B(L0B,40)=P$B
240 IF C$="F" THEN H$B(L0B,11)="" ELSE H$B=STR$(M$1):H$B(L0B,1)=H$B(M$1,2)
250 H$B(L0B,41)=H$B:H$B(L0B,49)=H$B:H$B(L0B,53)=H$B:H$B(L0B,55)=H$B:H$B(L0B,57)=H$B:RETURN
260 T$=LEFT$(T$B,2):H$B(1)=T$B,4,21:R$=RIGHT$(DATE$,21)*"/"LEFT$(DATE$,21)*"/"H$B(DATE$,4,21):RETURN
270 IF C$="F" THEN 350
280 FOR IS=1 TO LEN(C$):M$=H$B(C$,IS,1):J=2+ASC(M$)-47:NEXT:J=J*625:IF J=0 THEN 2=0
290 IF J=0 THEN J=J+J:GOTO 290
300 IF LEN(M$1(1))=1 THEN 350
310 IF LEFT$(M$1(1),1)="" THEN 350
320 IF LEFT$(M$1(1),LEN(C$1))+C$ THEN 340
330 J=J+1:GOTO 290
340 J=0:RETURN
350 J=1:RETURN
360 INPUT "REPORT RECEIVED ":X$:RETURN
370 GOSUB 220:INPUT "REPORT SENT ":S$:IF S$="599" THEN 370 ELSE RETURN
380 GOSUB 220:INPUT "POWER (mWts)":P$:IF P$="K" THEN 380 ELSE RETURN
390 GOSUB 220:INPUT "BAND ":F$:IF F$="F160" THEN 390
400 FOR IS=1 TO BANDS:IF INT(F$)=B1$1 THEN H$B=H$B+NEXT:LOCATE 22,1:FOR IS=1 TO BANDS:PRINT B1$1(1) " ":NEXT:GOTO 410
410 B$=H$B(STR$(F$),2):B1$=F$G$US1:RETURN
420 GOSUB 220:INPUT "MODE ":M$:IF M$="" THEN 420 ELSE RETURN
430 GOSUB 220:INPUT "CALL SIGN ":L$:GOTO 440
440 IF M$="" THEN 430:IF LEFT$(L$,11)="" THEN M$=LEFT$(L$,LEN(M$1)):GOTO 440
450 LOCATE 22,1:PRINT BLANK:LOCATE 22,1:C$=M$:GOSUB 270:IF J=1 THEN PRINT "OK":GOTO 510
460 F2=F1(1):PRINT "WORKED ON "
470 FOR H$=BANDS TO 1 STEP -1:IF F2(B1$1) THEN 500
480 PRINT B1$1(1) "I1$F2(B1$1)=B1$1:IF B1$1=INT(F1) THEN PRINT "DUPLICATE":CH$=F1(1)
490 IF F2(B1$1) THEN 470
500 NEXT
510 RETURN
520 GOSUB 220:INPUT "ARE YOU SURE 'IAB' IF NO" THEN RETURN
530 IF M$1 THEN GOSUB 220:PRINT "CAN'T FORG0 A ZERO ENTRY":RETURN
540 IF M$=H$B LEFT$(M$,1)="" THEN RETURN
550 C$=C$B:GOSUB 270:F1(1)=F1(2)+B1$1:IF F1(2)=0 THEN M$1(2)=""
560 M$=F1(1):GOTO 400
570 IF LEN(M$1)=0 THEN 500 ELSE IF LEFT$(C$,1)="" THEN 500 ELSE 590
580 LOCATE 22,1:PRINT BLANK:LOCATE 22,1:PRINT "MET THE DATA FIRST":RETURN
590 C$B=C$B:GOSUB 270: F1(1)=F1(2)+B1$1:W$1(1)=C$B
600 PRINT$=B1$1,"I1$:",B1$1,"C1$:",B1$1,"I1$:",B1$1,"P1$:",B1$1,"Q1$:",B1$1,"R1$:",B1$1,"X1$
610 IF C$="F" THEN 620 ELSE M$=M$1:GOTO 430
620 M$=M$+1:IF M$1 THEN M$=0
630 GOSUB 230:L1B=L2B:L2B=L3B:L3B=L4B:L4B=L5B:L5B=L6B:L6B=L7B:LOCATE 1,5:PRINT @

```

Use two computers for the next contest — why use one computer when you can use two?

Contests are a natural application of computers to amateur radio. After all, the purpose of a contest can be stated as gathering data, (the calls and reports of stations worked) in such a way as to avoid duplicates. When working contests in a manual (non-computer) mode, if you desire to avoid duplicates, you usually have to keep two sets of records for each contact. The log entry has to be made, and a duplicate sheet of some kind has to be kept to give real time notice of potential duplicate contacts.

Major contest operators do things *quickly*. When one is working a pile-up, the calls have to be logged quickly and accurately: *duplicates have to be weeded out speedily*. For that reason, the job of contest logging is dedicated to one computer. If the station log, comprising general QSO data, as well as logs of past contacts, is available on disk, a second computer can be used to scan that log in real time, and notify the operator of previous contacts. This is a great piece of one-upmanship, for now you can not only tell other stations that the QSO is a duplicate, you can also tell them when you last worked, ask them if they have received your QSL card, and *why haven't they sent you one?* if you have the time and inclination.

REQUIREMENTS FOR A GOOD CONTEST PROGRAM

The use of a good contest logging program simplifies the paper work during and after a contest and allows the operator to concentrate on working stations. During the contest, the operator has only to perform the following tasks.

- * Enter the call sign of the station worked.
- * Enter the report received.
- * Tell the computer to log the contact.

The computer takes care of the rest of the data handling. The computer thus performs the following tasks.

- * Keeps a check list in memory to notify the operator if a contact has been made on the same (duplicate) or another band.
- * Updates date and time information automatically.
- * Stores the contact data in a floppy disk file.

Consider the two programs needed to provide this capability and the linkage between them.

The contest logging program gives the operator all the following choices.

C Enter the Call of the station to be, or being worked. When the call is entered, the computer will perform a check to see if the call has already been worked and if so, on what band. If the call has been worked on the band in use at that time, it will also display the word DUPLICATE.

950 Subroutine to perform error trapping and recovery.

The variables and parameters used in the program perform the following tasks.

B()	Binary code for each band.
B%	Index into B() and B1() for Band in use.
B1()	Bands.
BANDS	Number of Bands recognised.
F	User Band information.
F1()	Part of Check List for band that QSO was made on.
F2	Temporary band information for scanning check list.
I%	General integer variable.
J	General variable (index into check list).
M9()	Size of check list (maximum number of QSOs).
N4	Valid QSO count.
Q%	General integer variable.
AS	User Answer String (holds operator input).
BLANK\$	Line of space characters.
B\$	Band.
C\$	Call of station being worked.
C4\$	String containing allowable command characters.
C8\$	Call of previous contact.
DS	Formatted date.
DATES	BASIC date string.
GS	Title.
LS	Name of contest log book.
LOS	Current QSO line.
L15-L13\$	Previous QSO lines.
M\$	Mode.
N4\$	Temporary QSO number string.
P\$	Transmitter power.
Q\$	QSL received information.
Q8\$	QSL sent information.
Q\$	Report received.
R1\$	Default report value.
S\$	Report transmitted.
S1\$	Default transmitted report value.
TS	Formatted time string.
TIMES	BASIC time string.
W\$()	Calls worked (check list).
XS	Comments (used to hold received contest data).

THE DATA-BASE SEARCH PROGRAM

The second program is written in DBASE2 and assumes that the main station log book is kept

in an indexed DBASE2 data file with the following structure.

FLD	Name	Type	Width	Comment
001	DATE	C	008	Date on format YY/MM/DD
002	TIME	C	004	Time in format HH/MM
003	BAND	C	003	Band; eg 10, 20, 40
004	CALL	C	010	Call sign
005	RX	C	003	Signal report received
006	TX	C	003	Signal report transmitted
007	MODE	C	004	Mode of QSO; eg SSB, FM
008	POWER	C	004	Transmitter power
009	QSLSEN-	C	001	QSL sent information; eg B (burrau)
010	QSLRX	C	001	QSL received information; eg R (received)
011	Comments	C	010	Comments and notes

The index is given the same name as the log file using the statement **INDEX ON CALL TO log book** where **log book** is what you called the log. The floppy disk will thus hold two files, namely the actual data-base (**LOGBOOK.DBF**) and the index file (**LOGBOOK.NDX**).

The DBASE2 program to find the call in the data-base log is listed in Figure 2. The reason that it is so small is because DBASE2 is a great language for playing with data. The program starts by initialising the variables and then enters a loop. The loop accepts a call sign or prefix from the terminal and searches the log for it. If one is found, all calls beginning with the prefix are displayed. If the prefix or call is not found, a message to that effect is also displayed. The loop terminates when an asterisk is entered as the call sign, which is the same code for terminating the contest program.

INTERFACING THE PROGRAMS

Up to now, two programs running on separate computers have been described. In order to make them work together they have to be interfaced. This interface task is a custom task and may have to be performed in a different manner for different computer pairs. The Contest Program has to be modified to output the call sign to the second computer. It is recommended that this be done via the RS-232 Communications Port. Line 115 should be added to **OPEN** the relevant communications port (COM1 or COM2 at the Baud rate desired

or as needed by the second computer). Line 445 should also be added to output the call sign (C\$) as each new call is entered by the operator. Error trapping should be added at line 965 so that if something goes wrong with the RS-232 interface or the second computer, the contest program does not bomb, but will continue to work in a degraded manner in which the extra facility provided by the second computer is no longer available. It would also be good practice to add line 755 to close the communications link when the program is terminated. Typical examples are:

```
125 OPEN "COM1:1200,N,8" AS #4
525 PRINT #4,C$
845 CLOSE #4
965 IF ERL = 445 THEN RESUME 450
```

In this example, the serial port is opened as a 1200 Baud, no parity, eight data bits and one stop bit communications line.

The second computer should preferably be one with a separate RS-232 CRT terminal. If this is the case, its interface cable can be modified by removing the wire from the keyboard and routing it to the serial port connector of the first computer instead. Many eight bit machines run CP/M-80 and DBASE2. A program, possibly also in BASIC, should be run on the contest computer so that it acts as a remote terminal so as to start-up the second computer, load DBASE2 and enter the **CALLFIND** command. As this is a software article there is not really space to describe the customisation process in detail. If you are not sure of what to do, there is probably someone in your local club who could advise you.

GETTING DATA INTO THE DATA-BASE

In order to use the two programs together, the DBASE data-base should have some data in it. This means that entries from old log books need to be copied into the computer. If the log is large it may take a long time to do that job (a great way to spend your time while "reading-the-mail"), so a DBASE2 program called **UPDATE** listed in Figure 3 may be used to speed-up matters. This update program is optimised for entering data from old contest logs into the DBASE2 data-base.

The first entry should be made manually using the **APPEND** command in an interactive manner to set the date, mode and power information. The **UPDATE** program is then

Figure 2 — Find Program.

```
*CALLFIND VERSION 95-09-10 (STAND ALONE VERSION)
LOCAL VARIABLES callflag,calheard
SET TALK OFF
USE logbook INDEX logbook
STORE T TO callflag
MAXIM 120P
DO WHILE callflag
  GOTQ TOP
  ACCEPT "Call/Prefix (B To terminate) ? " TO calheard

  IF calheard = "B"
    STORE T TO callflag
    CLEAR LOOP CONTROL FOR EXIT
  ELSE
    ERASE
    ? "Log entries for CALL PREFIX = ", calheard
    ?
    ? " ENTRY"
  ENDIF
  ? " * CALL DATE TIME BND TX RX RDE S R COMMENTS"
  FIND calheard
  IF # = 0
    ? 5,1 SAY calheard
    ? 5,12 say "does not appear to be in the log"
  ELSE
    DO WHILE call = calheard .AND. (.NOT.EOF)
      ? #,call,date,time,band,rx,tx,mode,qslsent,qslrx,comments
      SKIP
    ENDQ
  ENDIF
  ERASE
  ? " * RESET POINTERS"
  GOTQ TOP
  ERASE
  ? " GET READY TO EXIT"
  RELEASE callflag,calheard
  RETURN
```

LOGUPDATE VERSION 050911
UTILITY TO ENTER CONTEST LOG DATA INTO DATABASE BY HAND

SET TALK OFF

USE logbook

STORE T TO calllog

GOTO BOTTOM
STORE call TO lastcall

*INITIALISE NEW VARIABLES

STORE date to date
STORE time to atime
STORE band to rband
STORE power to spower
STORE mode to smode
STORE rx to nrx
STORE tx to ntx

SET INDEX TO logbook

MAIN LOOP

DO WHILE calllog

ERASE
STORE * TO qsgcount
STORE * TO qsgtx
STORE * TO acall
STORE * TO acments
STORE * TO loglog
STORE T TO datalog

DO WHILE datalog

10,1 SAY "LAST CONTACT WAS"
10,20 SAY lastcall
12,1 SAY "DATE"
13,1 SAY "TIME"
14,1 SAY "CALL"
15,1 SAY "BAND"
16,1 SAY "POWER"
17,1 SAY "MODE"
18,1 SAY "REPORT (RX)"
19,1 SAY "REPORT (TX)"
20,1 SAY "COMMENTS"
21,1 SAY "Logit (ISL)"

12,13 SAY date
13,13 SAY atime
14,13 SAY rband
15,13 SAY spower
16,13 SAY smode
17,13 SAY nrx
18,13 SAY ntx

13,13 GET etime
14,13 GET ecall
20,13 GET ecomments
23,13 GET loglog
READ

DO :ASE

CASE loglog = "A"
STORE F TO calllog
STORE F TO datalog

CASE loglog = "L"

BLOG ENTRY
APPEND BLANK
STORE F TO datalog
REPLACE qsgcount WITH qsgcount
REPLACE qsgtx WITH qsgtx
REPLACE date WITH date
REPLACE atime WITH atime
REPLACE call WITH call
REPLACE band WITH band

REPLACE power WITH spower
REPLACE mode WITH smode
REPLACE rx WITH nrx
REPLACE tx WITH ntx
REPLACE comments WITH acments
STORE call TO lastcall
STORE * TO acall
STORE * TO acments

CASE loglog = "B"
15,12 SET rband

ENDCASE

ENDDO

ENDDO

06" READY TO EXIT

RELEASE logbook, calllog, lastcall, date, atime, rband, spower
RELEASE mode, nrx, ntx, qsgcount, qsgtx, acall, acments

RELEASE loglog, datalog

RETURN

Figure 3 — Update Program.

invoked by the **DO UPDATE** statement. After the contact data for each QSO has been input, the program prompts for a decision. It gives the operator the choice of three things to do as follows.

- * Terminate the program.
- L Log the entry into the data-base.
- B Change the band information.

It must be repeated that this program is designed for rapid entry of old contest logs into the data-base, logs in which the only differences between one entry and the next are the time, call sign, and reports, with the occasional change of band. Any other data must be set, or changed, using DBASE features.

After the data is in the data-base, use the following statements to massage the data a little. To duplicate the report from the comments column to the report column use the following interactive command.

REPLACE ALL rx WITH \$ (comments,1,3) then to delete the report from the comments column use this statement,

REPLACE ALL comments WITH \$ (comments,3,10)

If you want as serial number added to each comment line, perform the **NUMBER** command listed in Figure 4. This program is an example of string handling in DBASE2.

NUMBER ADDS NUMBER TO COMMENTS

SET TALK OFF

STORE T TO qsgcount

USE logbook

DO WHILE .NOT. EOF

STORE STR(qsgcount,10) TO number

DO WHILE (number,1,1) = "

STORE STR(number,2,10) TO number

ENDDO

REPLACE comments WITH TRIM(number)+comments

STORE qsgcount + 1 TO qsgcount

? call

?? comments

ENDIF

ENDDO

RELEASE qsgcount, number

RETURN

Figure 4 — Number Program.

POST CONTEST DATA-BASE UPDATES

Once the contest is over, the log file must be corrected using a word processor to delete any fudged entries. A program to do this job was available in the original package described in my book *Software for Amateur Radio* (TAB BOOKS number 1560), but has not been converted to Microsoft BASIC because it was found that some editing was always performed on the logs and why not delete the error lines at the same time.

Serial numbers can be added to the comment space in the log and the report area set properly by the **LOGCONV** program listed as Figure 5. This program reads each line of log information, strips the report part from the comments and puts it into the report space (line 110) and adds the serial number of the contact into the comments space (line 120). When the program has done its job, the original log has been renamed with a **.RUN** file extension while the converted log data file has the extension **.LOG**.

The log file is now ready to be converted to a DBASE format file for further processing. If the second machine, that contains the data-base is an IBM-PC or compatible, the contest **.LOG** file has to be transferred to a disk that the second machine can read using one of the format transfer programs readily available.

First invoke DBASE. Next generate a blank log book data-base file either by **CREATING** one with the same structure as the big one, or copying the structure of the big one onto the new one as follows:

USE logbook
COPY STRUCTURE INTO contest
USE contest
INDEX ON call TO contest

The contest log is then appended to this data-base log file using the DBASE statement **APPEND FROM contest.log.SDF** **DELIM** which will copy the log data into the data-base.

You can then display, or print, the call sign in the contest log in alpha-numerical order to check for duplicates, prefixes or whatever. You may even get displays of contacts on different individual bands by using variations of the DBASE command **DISPLAY ALL FOR BAND = "xx"** where xx is the band you want displayed.

The temporary contest log data-base can then be appended to the main station log book data-base with the following two statement.

USE logbook INDEX logbook
APPEND FROM contest

The main log book data-base is then ready for the next contest or any further data-processing and analysis desired.

SUMMARY

This article has shown how two computers, each running separate programs written in different languages, may be linked together into a multi-tasking operation during an amateur radio contest. If two machines are not available, it is still worthwhile to use the programs separately in series. The contest program is run during the contest, the data then transferred to the data-base file format and checking can commence. Other programs written in DBASE2 may then be used to generate DXCC records, perform QSL functions, or what you will!

FOOTNOTE: Joe Kasser was first licensed as G8BTB in 1968, and received his current call sign in 1970. His interests in amateur radio are wide-ranging and cover everything from ORP to satellites. He served as the editor of AMSAT's publications from 1974 to 1981. He has many magazine articles and two books, on the subject of micro-computers and amateur radio, to his credit. His latest efforts are the applications of micro-computers to amateur radio. At present he is an international consultant in the fields of micro-computers, systems and electronics.

RANDOM MORSE

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The program generates groups of 10 lines of five characters each, sounding each line in CW and displaying them on the computer monitor after being sent. The program-user copies each line as it is sent through the monitor speaker and after receiving all ten lines the result is compared with the displayed lines for

correction purposes. (So no cheating! !)

After checking the results, any key except T is pressed for another set of 10 lines.

The speed setting is arbitrary as I do not know a suitable algorithm for speed entry in WPM

It is not necessary to press *Return* after

Here is a handy little program to help limited and/or novice licensees to brush up on their CW.

```

20 DIM L$(50),A$(36),XZ$(4)
20 REM
30 REM.....
40 REM
50 REM RANDOM HORSE
60 REM
70 REM.....
80 REM
90 POKE 36879,B:PRINT CHR$(5)
100 GOSUB 1360: GOSUB960:GOSUB250
110 PRINT"":REM PRINT CLEAR SCREEN
120 GOSUB1170:FOR ZZ = 1 TO 5999: NEXT
130 FOR A = 1TO10
140 GOSUB 870
150 FOR B = 1 TO 5:S$=MID$(T$,B,1)
160 GOSUB390
170 FOR K=1TOTL
180 L$=L$(K)
190 GOSUB 520:L$="":REM ANULLINL$
200 NEXTB:PRINT$:PRINT:FOR ZZ = 1TO 2499:NEXT:NEXTA
210 GET U$:IF U$="" THEN 210
220 IF U$="!" THEN PRINT"":END
230 L$="":S$=""
240 GOTO 110
250 FOR I=1TOT6
260 READ M$(I):NEXT
270 DATA "....."
280 DATA "....."
290 DATA "....."
300 DATA "....."
310 DATA "....."
320 DATA "....."
330 DATA "....."
340 DATA "....."
350 DATA "....."
360 DATA "....."
370 RETURN
380 REM
390 REM TRASLATION
400 REM
410 L=LEN(S$)
420 FOR I=1TOTL
430 L$(I)=CHR$(32)
440 FOR J=1TOT26
450 IF MID$(S$,I,1)◇CHR$(64+J) THEN 470
460 L$(I)=M$(J)
470 NEXT J
480 FOR J=27TOT30
490 IF MID$(S$,I,1)◇CHR$(2+J) THEN 510
500 L$(I)=M$(J)
510 NEXT: NEXT
520 REM
530 REM AUDIO CHAR
540 REM
550 IF L$◇CHR$(32) THEN 570
560 GOSUB820:GOTO460
570 W=LEN(L$)
580 FOR I=1TOW
590 X$=MID$(L$,I,1)
600 IF X$=CHR$(46) THEN GOSUB450
610 IF X$=CHR$(45) THEN GOSUB710
620 NEXT
630 GOSUB 770
640 RETURN
650 REM
660 REM GENERATE DOT
670 REM
680 FOR B=1TOS:POKE36878,15:NEXT
690 FOR B=1TOS:POKE36878,0:NEXT
700 RETURN

```

```

720 REM GENERATE DASH
730 REM
740 FOR D=1 TO 3:G:POKE 36876,15:NEXT
750 FOR D=1 TO 5:POKE 36876,0:NEXT
760 RETURN
770 REM
780 REM END CHARACTER
790 REM
800 FOR D=1 TO 2*S:POKE 54300,0:NEXT
810 RETURN
820 REM
830 REM END WORD
840 REM
850 FOR D=1 TO 6*S:POKE 54300,0:NEXT
860 RETURN
870 REM
880 REM GENERATE 5 CHARACTER WORD
890 REM
900 XX="":ABCDEFGHIJKLMNPOQRSTUVWXYZ0123456789"
910 FOR XX=0 TO 4
920 XY=INT(36*RND(1))+1
930 XZ(X)=MID$(XX,X,Y,1):NEXT
940 TS=XZ(0)+XZ(5)+XZ(6)+XZ(2)+XZ(3)+XZ(4)
950 RETURN
960 REM
970 REM DISPLAY AND SPEEDING
980 REM AND SELECT SREET AND TONE
990 REM
1000 PRINT "      RANDOM MORSE  "
1010 PRINT "ADAPTED FROM A PROGRAM"
1020 PRINT "WRITTEN BY L.R.CARTER"
1030 PRINT "% E.UZAN ----- BY"
1040 PRINT "      J.L.WICKHAM"
1050 PRINT "      UK3KGP"
1060 PRINT "SELECT SPEED (1 TO 5):"PRINT
1070 GET U$;IF U$="" THEN 1070
1080 S=(40-(7*VAL(U$)))
1090 D=INT(VAL(U$)) GOTO 1110,1110,1110,1110,1110
1100 GOTO 1070
1110 PRINT" SELECT TONE (1 TO 5)"
1120 GET U$;IF U$="" THEN 1120
1130 POKE 54280,(245-(4*VAL(U$)))
1140 D=INT(VAL(U$)) GOTO 1160,1160,1160,1160,1160
1150 GOTO 1120
1160 RETURN
1170 REM
1180 REM
1190 REM TO THE RIGHT OF RANDOM
1200 REM DISPLAY WITH INSTRUCTIONS
1210 REM
1220 I=7778
1230 POKE+1,POKE+1,1:POKE+2,14:POKE+3,4
1240 POKE+4,15:POKE+5,13: E=7022
1250 POKE+6,15:POKE+7,15:POKE+8,2
1260 POKE+9,19:POKE+10,5: E=7952
1270 POKE+11,POKE+1,14:POKE+2,25:POKE+4,11
1280 POKE+5,51:POKE+6,25:POKE+8,20:POKE+9,15: E=7996
1290 POKE+13,POKE+1,15:POKE+2,14:POKE+3,20:POKE+4,9
1300 POKE+5,14:POKE+6,21:POKE+7,5:POKE+9,15:POKE+10,18
1310 E=B042
1320 POKE+3,POKE+1,20:POKE+2,39
1330 POKE+4,20:POKE+5,15: E=B085
1340 POKE+20:POKE+1,5:POKE+2,18:POKE+3,13:POKE+4,9
1350 POKE+5,14:POKE+6,1:POKE+7,20:POKE+8,5: RETURN
1360 PRINT"TURN UP YOUR A.F.GAIN!"
1370 FOR ZZ=1 TO 599: NEXT
1380 PRINT"::: RETURN

```

READY.

entering the settings as the program responds on the knocker.

To end the program, press T without hitting Return.

This program was written for the Commodore VIC-20, but it should be easy to modify for the other computers. Checking the classified advertisements reveals plenty of VICs going for a song and I personally prefer these keyboards instead of rubbery keyboards

frequently found on many economy computers.

The main heart of the program is not mine as it was written by L R Carter and E Huzan, and is found in their book "Learn Computer Programming With The Commodore VIC" on pages 125 to 127.

With this program, a word is entered, which is then sent back in CW via the monitor's speaker. I have merely added a subroutine at lines 8000 to 8999 which randomly generates a

five character line consisting of either letters, numbers or both which I feel is of far more value to budding CW enthusiasts plus the means to check their results.

So give this program a try and tailor it to suit your own needs. Happy brass pounding.

EDITOR'S NOTE: Some of the special Commodore symbols have not been printed on the copy of the program, however regular Commodore users will be able to work these out.

AR

AN OMNI-DIRECTIONAL 2 METRE VERTICAL

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Described is a unity gain vertical antenna for the 2 metre band.

The antenna is made out of RG-58 coaxial cable and enclosed in 25mm PVC conduit.

CONSTRUCTION

Using approximately 3.1 metres of RG-58 cable, carefully strip off 425mm of braid from one end (so inner is exposed). Then cut off about 200mm of the inner conductor and solder an identical length of braid to that just removed from inner.

Cut off 1.5 metres of 25mm PVC conduit, measure down 850mm and drill two 9mm holes 45mm apart. Feed the RG-58 through the upper hole (trimmed end) until it is flush with the top of the conduit. Form a nine turn coil with the other end of the cable around the conduit and pass it through the lower hole out the base of the conduit and out the base of the conduit.

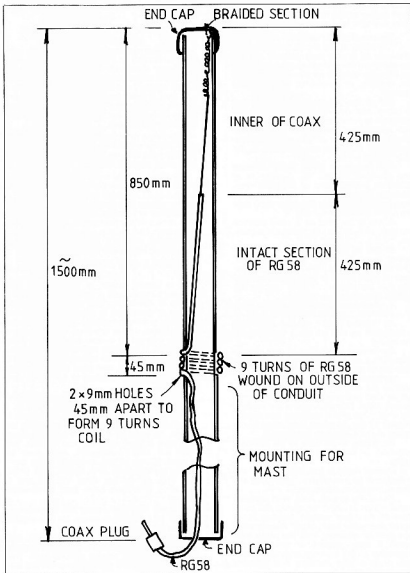
Temporarily tape the top of the aerial to the conduit and check the VSWR. This should be about 1.15:1 at 146 MHz rising to about 1.4:1 at either end of the band. Minor tuning can be effected by altering the length of the top section.

Having checked the tuning, pull the top section of the aerial tight and fold it over the end of the conduit (about 5mm over end) and slip a 25mm end cap over top. This will hold aerial reasonably tight inside. Drill a 9mm hole in another end cap, pass the coax through the cap and use it to plug the bottom of the conduit. Drill a small drain hole if required. Wrap the coaxial coil with good quality tape to hold it firm.

Care should be taken in the choice of conduit as some have varying amounts of carbon in their composition which can greatly alter tuning and performance. Conduit used in this model was 25mm class 12 (white) AS 1477/850511 manufactured by Hulmes Australia. This and the caps are available at plumbing outlets.

The antenna is a unity gain type (performance comparable to that of a dipole) but still gives good results. It is easy to make and can be built in about an hour. No originality is claimed for the electrical design, as it is based on commercial designs.

AR



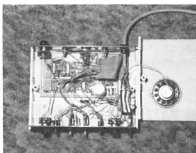
CQ PROGRAMMABLE MEMORY KEYS

Ron Mills VK5XW

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Lindsay Collins VK5GZ

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GENERAL CIRCUITRY FOR ONE/TWO MEMORY VERSION

The heart of the unit is the 2102L 1024 bit static RAM. The 4040B, a 12-stage ripple counter, is driven by clock pulses derived from a pair of NAND gates (U4A and B). These pulses have been through a D flip-flop (U7A) to even up their duty cycle (frequency is also halved). U4C is controlled by the RUN/HOLD key so that the clock pulses to the chips cease during the HOLD mode. When the RESET button is pressed all outputs of the 4040B go-low, and counting does not start until the RUN/HOLD switch is in the RUN position. U5A and U7B control the READ/WRITE line to the 2102Ls. Pin 13 (Q) of U7B, a D flip-flop, goes high when the RECORD button is pressed. This allows data to be entered into the 2101L from the Morse key via U5C once S3 is in the RUN position. Outputs from the 4040B, in conjunction with the READ/WRITE pulses to the 2102Ls allow the storage of the data into the memories from the key via U5C and the IN pin 11 of the enabled 2102L. The polarities on the chip enable pins 13 (CE) of the 2102Ls to determine which one receives the data. The chip is enabled when pin 13 is low.

Initially, if both memories are to be used, pin 11 of U7B is high after the RESET button has been pressed. (Output from pin 15 of U1 to pins 12 and 13 of U4D is low and output to pin 11 of U7B is high as it follows pin 11 of U4D). It is not until pin 11 of U7B goes low then high again that the flip-flop U7B toggles holding pin 5 of U5A low. This prevents further recording. During the record period, the output of U4D goes low (after pin 15 of U1 goes high) disabling U2 and enabling (U3), the second 2102L. If only one memory is to be used then pin 11 of U7B will be low after RESET and U7B toggles the first time that its pin 11 goes high, ie it follows pin 15 of U1. (The two MEMORY SELECT switches take care of the difference between one or two memories as regards the correct chip to be enabled and the stopping of the recording at the right time). U5B ensures that during the HOLD condition no output to the keying transistors is obtained from pin 12 of the 2102Ls. (The hand key is still active if required). The spare gates in U6 are used as an audio oscillator to drive TR6/7 which amplify the keyed audio to the built-in 8 ohm speaker. LEDs indicate which memory is being used, when recording can take place, and when keying is in progress.

FOUR MEMORY KEYS

The general circuit is much the same except for the selection of the memories. The four memories can be used singly or up to four in series. They are controlled by the memory distributor circuitry consisting of U7A and B (one shot oscillator) U8A and B (dual D flip-flop), and U9 (quad 2 input NAND gates A-D). An extra green LED has been added to show when the key.

With low cost memory chips becoming readily available, it was decided to use them to take the hard work out of calling CQ on the new WARC bands. It was because of the interest of Lindsay VK5GZ, in activating these bands that prompted the writer to develop the following designs.

The static RAM chips used were the 2102L because of their ready availability and low price, even though it would have been nice to have used the CMOS variety which were in short supply at the time (and expensive). The other desirable features for the designs were:

The use of readily available parts.

The ability to key the transmitter either manually by key, or automatically via the keyer without disconnecting the key. Keying via the latter mode to continuously cycle via the memory, or memories, until stopped manually.

Enough memory time available so that a pause can be left at the end of the message to listen for any replies to the CQ call before the message's restart. This allows the operator to take control of the transmitter if an answer is heard in the silent period.

The messages to be easily inserted and changed without the burning in of ROMs or programming of EPROMs. This flexibility was decided on even though it meant re-programming the keyer each time the power was disconnected.

Ability to be used as a code practice oscillator with, or without, using the memories.

Useable as a teaching aid to the newcomer trying to master the Morse code. This ability to record, then listen to the playback of one's effort is quite revealing. Any dits that are clipped, or poor spacing are quickly revealed to the operator.

A continuous speed adjustment from about three to 30 words per minute.

An audible (with volume and tone adjustment) as well as visual indication of the keying.

Switchable memories so that several messages can be recorded, stored, then selected as required.

Automatic cancelling of the write enable as the memory or memories become full so that over-writing of the message/s cannot occur. This also returns the keyer to the beginning of the recorded message/s. (Replay of the message then commences unless the HOLD switch is operated).

Recording to be able to be stopped, resumed, or cancelled during the record cycle.

Manual reset to the beginning of the message to be transmitted before or at any time during the transmit cycle.

The ability to stop, hold, then continue transmission at any time during the operation of the keyer without sending out a signal during the hold period. Transmission can then be resumed from the place from which it was stopped, or reset to the beginning of the memory originally selected, or to a new memory if a different message is desired.

The two memory keyer circuit to be easily converted to a single memory version if it is decided that one memory has enough capacity for normal CQ calling, or activating a dead band.

EXTRA FEATURES OF THE FOUR MEMORY KEYS

Four memories of 1024 bits are used, each being controlled by a switch on the front panel. A memory distributor controls the use of the memories selected by four switches. Rotation is from memory one to memory four from left to right only, ie going from one to four and back to one etc, continuously until manually stopped. Those memories not required are bypassed until switched into use.

Any one, or more, of the memories can be used during a QSO so that each can be pre-programmed with, eg the CQ call, QTH details, type of rig, antenna, etc.

A binary display using five LEDs is used. A green LED (the reset) for 0 and four yellow LEDs 1 to 15 are used to give an indication of the remaining time left in each memory (good experience in reading binary!), a green LED also shows which memory is being accessed at the time. This system can easily be changed to a digital display if the builder desires to experiment, or it can be left out all together.

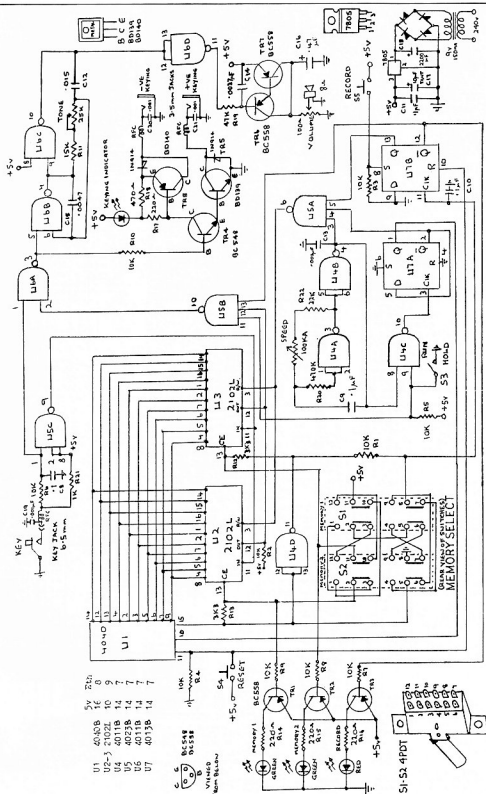
SINGLE ONE OR TWO MEMORY CIRCUITS

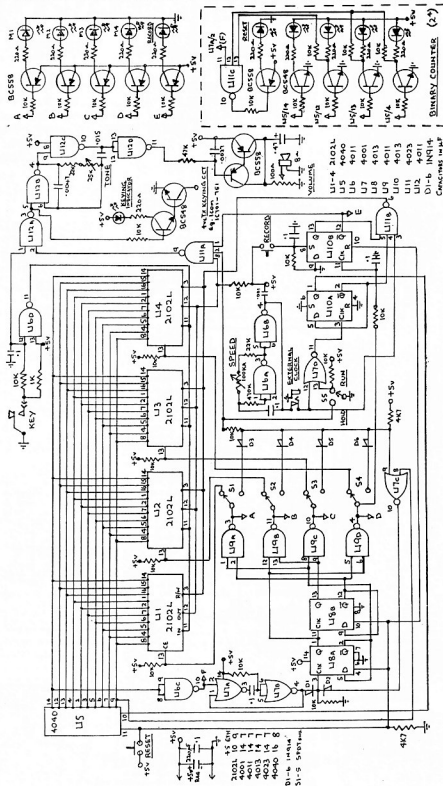
This is ideally suited to the learner who requires a Morse code practice oscillator, and a means of generating and recording practice groups of characters to improve sending and receiving at different speeds. Memories can be used either singly or in series. The characters can be entered at a slow speed, and when confidence in receiving improves, they can be played back at a faster speed. Also it gives a chance to hear just how good one is sending. This allows for correction to be made and monitored.

The circuit is also very good as a CQ caller on dead bands (just ask Lindsay VK5GZ). It allows the operators to be doing other work in the shack at the same time as activating the bands. As soon as a reply is heard, manual operation is then resumed and a QSO, that may not have eventuated, may then be worked. (Some of the amateurs using these keyers are VKs 5NH, 5PH, 5NDP, 5BM, 5NKG and 5LC, as well as other VK, ZS and G operators who have been sent construction details).

(Lindsay has been using the two-memory version for nearly three-years. He can explain his operating system later).

By deleting the two switches (4 PDT), and one of the memories, plus a couple of resistors, a simple memory version can be built. This makes it easier and cheaper to build, but less flexible to use.



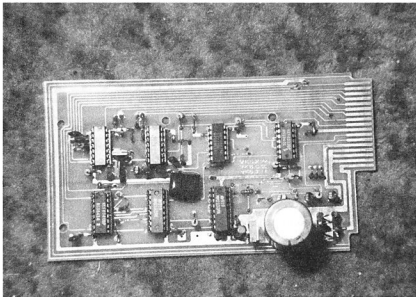


has been reset plus the binary count orange LEDs.

CONSTRUCTION

All versions so far have been built up using vero board and IC sockets. (There have been enough faulty CMOS chips to warrant the extra expense of sockets, as well as simplifying initial point to point testing — a logic probe was invaluable for fault finding). The layout is not critical. The longest job is the commoning between the memories and the 4040B. There has been available, a commercial universal memory board from Tandy (part no 276-184). It could be cut in half giving two four memory and one 4040B positions which cuts down the wiring time, especially with the four memory competition version. The single or two memory versions are not that hard to construct if Lindsay's vero board layouts and metal box templates are used. He will supply these, plus test-out details (if required). If you would like this information then please send him (QTHR) \$2 for postage, photostating and packaging. Darryl VK5IN, has been organising the production of a commercial PCB that can be used for either the single or double memory versions. This should become available soon. (Because of the obvious advantages of a PCB, this article has not been published earlier). Please refer any queries to Lindsay regarding construction, parts, etc.

The only problems encountered over many prototypes has been with the values of the resistors R12 and R13 (nominally 4k7 in series with the chip enable pin 13). Due to differences in characteristics of the older type 2102 chips, it has been necessary to reduce these resistors to 3k3 and even 2k7 in some cases, for reliable operation. (On later trouble-shooting it has been discovered that it may be better to change the values of R8 and R9 from 10k to 27k, and reliable operation of the green LEDs driven by TR1 and TR2 is still OK even if R8 and R9 are 47k). A small capacitor C13 (0.001uF) from pin 4 of U4 to +5V or ground was added. This was necessary to cure what was thought to be a parasitic oscillation in some 4011B chips. RF feedback was not found to be any problem even with the prototypes bread-boarded on the bench. Allowance has been made just in case. The RF chokes were made of 20-30 turns of fine wire, wound over a high value old style half-watt resistor and the units built in metal boxes. Some transceivers, eg FT707, had such low keying voltages that a protection diode in series with the transmitter keying lead to be omitted for satisfactory keying of the transmitter. The original keyers were built for operation with the Icom range of transceivers so a single BC548 easily handled the keying voltage and polarity. Since then, provision has been made for high voltage on the keying line, eg TS820S etc. Also, keying polarities varied so both the BD139 and BD141 (available from the SA Division ESC) were incorporated to cater for all



transceivers. The four PDT switches are DSE S-1301 and are best wired before installing, leaving the six flying leads to then be connected. The power supply can be either external or internal. The keyer can be built into quite a small space if required. My four memory version, including the power supply, fits into a metal box measuring 50 x 100 x 150mm. Two circuit boards were piggy-backed.

OPERATION (written by Lindsay VK5GZ)

By setting the memory speed control to its slowest speed, switch the *RUN/HOLD* switch to *HOLD*, then press the *RESET* button. This resets the memory to the beginning. Press the *RECORD* button to put it into the *RECORD* mode, the *RECORD* LED lights up. It is now ready for recording. Put the *RUN/HOLD* switch into *RUN* and commence sending Morse at a speed of five words-per-minute. It should hold about five words (during entry you will see the CW monitor LED blink as it follows the dots and dashes. An audio note — volume and tone adjustable — will also be heard). When the memory or memories are full the *RECORD* LED goes out. The memory switches itself back to the start and prevents over-writing. Cease sending. Playback of your recording will commence unless switched to *HOLD*. Replay can be sped up by advancing the speed control.

Now try and put in a normal CQ call. Advance the speed control to around one-third, then re-program the memory as above. Commence the sending at your normal operating speed. If you finish 10 seconds before the *RECORD* LED goes out, it means that the speed control can be advanced a little more. If the *RECORD* LED goes out and the replay commences to jam your sending before you have keyed in all of your message, it means that the speed control must be eased back a little. After adjusting the memory speed control, repeat the above until you get it correct. Now try leading in a longer CQ call using the same speed. This entails the memory holding more information than your last CQ call, so the speed control must be eased back a little more, before commencing to send.

When operating at a normal operating speed of 15 WPM, I like to have about a three-second pause on listening before it commences

another CQ call. I operate my receiver CW VU at about a speed of 7WPM. This saves the transmitter switching from transmit to receive all the time, also you do not hear all of the QRM on your own frequency. At fast operating speeds, it is bad enough thinking up the sentences to send, then sending it one word at a time, and transferring the Morse dots and dashes into twin paddle movements.

When you understand all of its operation, you can plug the output of this memory keyer into your transceiver. It is recommended to leave the key lead at its normal length (the memory may be out on loan) and make up a new shielded lead with a 3.5mm plug for the memory unit end, and a 6.5mm plug for the transmitter end.

Upon entering my shack, I switch on the power to my transmitter, the keyer, and the memory unit. After checking the speed setting of my paddle keyer, then the memory speed control, press the *RESET* and *RECORD* buttons, switch to *RUN*, then put out a live, on-air, CQ call while it is being recorded. It can now be slowed to 6WPM or advanced up to 30WPM. The VOX time is naturally lengthened or shortened, so beware! Every so often, switch to *HOLD* and listen, just in case you have missed a late caller, then go back to *RUN*. It will carry on sending where it left off.

During transmit operation, the audio of the memory can be turned down if it is preferred to listen to the receiver monitor. The contents of the memories can be changed at any time. Once the message has been recorded, make sure that the *RECORD* button is not pressed unless it is desired to change the contents of the memory.

AR

ELECTRONIC MAIL CATCHES ON

A high demand has resulted in Australia Post increasing its number of electronic mail centres by 25 percent.

The expansion will mean that 145 centres will be equipped to receive; transfer and deliver Intelpost.

Launched two years ago, Intelpost has the first public service of its kind which could transfer customers' documents across Australia, to 80 percent of the population, in two hours.



*If the earth were a perfect conductor
man-made currents flowing into it would
meet no resistance.*

AERIALS and EARTHS

John Gazard VK5JG
2 Corbin Road, Medindie Gardens, SA. 5081

Electrically the earth maybe considered as having a huge capacity. It is so large that man-made currents flowing into it do not raise its potential. If the earth were a perfect conductor, such current would meet no resistance. However, the earth is rather a poor conductor and so, before this huge capacity is reached currents must initially flow through a certain amount of resistance. After the initial earth contact, the cross section of the conducting path increases rapidly with distance, and after the first metre or so, the resistance becomes very small.

For example, if an earth stake of two centimetres diameter is driven one metre into the earth, the cross-section of the conducting path at the surface of the stake is 630 cm², but 10 cm away the cross-section is about 7500 cm² and one metre away it is over 188 000 cm². Thus, the resistance met by the currents entering the earth occurs close to the entry point and varies primarily as the surface area of the stake or other contact.

To find what earth resistance might be met in the loamy soil around Adelaide, two steel rods, 17 mm diameter and 1.25 metres long, were cleaned of scale and rust and pointed at one end. A cross-piece was welded to the other end to enable the rods to be twisted when withdrawing. They were driven into the earth to a depth of one metre and spaced five metres apart in various locations. The resistance between the stakes was measured, and it was assumed that half the resistance measured would be near the resistance of a single stake. The measurements were made in the middle of a relatively dry winter when the ground was moist but not saturated. Results indicated that the earth resistance varied greatly from place to place. With this configuration, values of 50 ohms to six ohms were measured with a most common value of 30 ohms for this type of loamy soil.

Additionally, measurements taken in a mangrove swamp, below high water mark, gave a resistance of 2.5 ohms, and when the rods were immersed in sea water the resistance was 2.2 ohms.

A commonly used earth stake consists of a 20 mm (3/4") galvanised water pipe driven 1.5 metres into the ground, and following the above tests, it is estimated that in most situations at least two of these would be required if an earth resistance of five ohms or less is to be achieved. It is therefore suggested that, when establishing an earth system, two such stakes be driven one metre apart in the desired location and the resistance between them be measured. This will give an idea of the resistance of each stake and enable the full earthing system to be planned.

Other methods of making earth contact are by means of buried plates, usually copper, or radial wires, but these are not as easy to install as stakes. A warning must be given of the corrosive effects when copper is buried in the ground. Unless special precautions are taken, the antenna earth will be in contact with the power earth, which is, in turn, connected to the water service. If this is so, a galvanic cell is formed between the copper and the galvanised water service and will result in the corrosion of the water pipes.

Water mains can be used as earth points, but the actual earth contact of the main may occur some distance away from the earth wire connection so that the pipe becomes a part of the aerial circuit and, as such, makes for an inefficient system.

The half-wave wire is a basic radio aerial, and the most usual type is a dipole, which is a centre fed exhibiting feed impedance depending upon its height above ground of approximately 70 ohms. If, with a vertical dipole, the lower quarter wave is removed and that side of the feeder is connected to earth, we have a monopole. Assuming perfect earth the feeder connected to earth meets zero resistance. Thus the impedance of the monopole is half that of the dipole, that is 35 ohms. Since the current flowing into the earth meets zero resistance, there is no loss of power. However, in practice, there is always some earth resistance so that, neglecting the resistance of the aerial wire, the impedance of the monopole is in fact 35 ohms, plus the earth resistance. If the earth resistance is, say 15 ohms, the total impedance will be 50 ohms. The power consumed in the 35 ohms produces radiation, but there is very little radiation from the power consumed in the earth resistance. The antenna efficiency in this case would be 35/50 or 70 percent. If the earth resistance were reduced to five ohms the efficiency would be 35/40 or 88 percent, only 0.5dB worse than for a perfect earth. If the monopole is shorter than a quarter wave length and resonated by series inductance, it will have an impedance of less than 35 ohms, and earth resistance losses will become more significant for such a shortened aerial.

GROUND PLANE

The ground plane aerial is a quarter wave vertical radiator which does not require direct earth connection and consequently has no earth resistance losses. In this case the earth connection is replaced by four quarter wave horizontal radials and the current flows via the four radials instead of the earth. Since currents in each pair of opposite radials are equal and opposite, radiation from the radials is therefore cancelled, so they have no radiation resistance. Their conductor resistance is small. Therefore, they act in the same way as an almost perfect earth. (The above would be strictly true if opposing radials were coincident in space. Since, in practice, they are separated by up to a half wavelength at their tips, it is only a good approximation. Ed.)

The ground plane aerial has two advantages over the monopole. It has negligible earth resistance and in most situations can be placed well above ground level, clear of obstructions. The impedance as stated earlier will be the same as that of a monopole (35 ohms). There has been some disagreement about its actual value. The RSGB Handbook states that it is less than 20 ohms whilst the ARRL Handbook indicates it is about 30 ohms. (A series of articles by VK2BBF, AR August-October 1984, analyses theoretically the impedance as a function of height above ground. Considerable variation is possible. Ed.) An approximate measurement can be made by measuring the SWR in a feedline of known impedance when feeding a ground plane. If a two metre model GP fed by a 50 ohm cable is constructed and trimmed to provide minimum SWR, it will be found to be approximately 1.4 (and thus the approximate

impedance of the GP is 50/1.4 = 35 ohms).

As both pairs of opposite radials are doing the same job of cancelling radiation from currents fed into them, it is logical to assume that one pair could be removed. This has been confirmed by detaching one pair, resulting in little change in impedance or field strength. With only two radials there is no resemblance of a plane and there seems to be little reason why the term *ground plane* should have been chosen for this antenna configuration. Unfortunately, the idea that a plane is required has led to amateurs cutting a hole in the centre of a car roof for a two metre mobile antenna when a quarter wave clipped to the roof gutter might serve nearly as well. The car body has sufficient capacitance for its potential to vary only slightly at 144 MHz. It therefore acts as a reasonable earth and the aerial functions as a monopole. (However, such asymmetric locations for mobile antennas can distort radiation patterns from the desired low-angle omni-directional. Ed.) The erection of a GP aerial for the lower frequencies will be simplified if the radials are sloped downward. If this is done, the currents in the radials will no longer cancel in the vertical direction, and there will be radiation from the vertical component of the current. The radials will then have some radiation resistance which will vary as the length of the vertical component — ie $\sin A$, is the depression angle of the radials below the horizontal. If the radials are bent down 90 degrees, the aerial becomes a vertical dipole, which has an impedance of approximately 70 ohms. By moving the radials from horizontal to vertical the impedance increased from 35 to 70 ohms. In general, for radials at an angle A below the horizontal the impedance will be $35 + 35 \sin A$ ohms. To match a 50 ohm feeder, $35 \sin A$ should be 15 and $\sin A$ 15/35 — ie $A = 26$ degrees.

This calculation was checked by making a two metre GP aerial with two radials. It was fed through an SWR meter and a 50 ohm coaxial cable and was trimmed for minimum SWR. This measured 1.5, indicating an impedance of 33 ohms. The radials were then bent down progressively and the SWR was found to decrease until it reached a minimum of 1.05 at an angle of approximately 25 degrees. As the angle was further increased, the SWR rose until it was again 1.5 when the radials were vertical, forming a dipole with an impedance of $50 \times 1.5 = 75$ ohms.

This experiment supports the above theory and brings about a different concept of a GP. It can be considered as a vertical dipole in which the lower quarter wave is split into two (or four) conductors and these conductors are bent up to the horizontal in opposite directions to cancel their impedance. The same currents flow as before and the radials take the same part in the resonant circuit except that they have no radiation resistance and consume no power.

Viewing the GP aerial as a folded-up dipole, another way of matching the aerial to a 50 ohm feeder is suggested. When the feed point of a dipole is moved away from the centre, the impedance at the feed point is increased. When the radials of a GP are shortened and the vertical is lengthened by a similar amount, this has the effect of moving the feed point away from the centre and increases the impedance. This was investigated using a GP aerial for two metres with two horizontal radials and a vertical (adjustable for length) and fed by a 50 ohm coaxial cable. Initially the radials

were cut to 16 inches, instead of 20 inches, and power was applied. The vertical was adjusted for minimum SWR. With a vertical length of 24.5 inches, an SWR of 1.0 was measured at 147.700 MHz and 1.2 at 146.500 MHz. Apparently, a GP aerial can be matched in this way. To match a 50 ohm feeder the ratio of radial to vertical would be approximately 2:3.

METHODS OF MOUNTING A GP ANTENNA

The easiest way to install a GP aerial is to place it on a tilt-over pole such as described in AR March 1984. The tilting pole need only be six metres long and can be made from 75 x 75 mm timber. The fixed pole could be a three metre treated pine pole about 100 mm diameter set one metre in the ground. With these sizes, a winch will not be required to haul it up, especially if the bottom end is counter weighted. A pole of this type, erected at VK5JG, did not require guys even when carrying a 10 MHz GP. The antenna itself can be made of aluminium tubing bolted to the top of the pole. As this is a low impedance point, no special insulation should be required. The vertical should be cut to the formula $468/f\text{MHz}$. The two radials can be 14 or 16 SWG or stranded earth-wire. They can then be tied at the lower end via a connecting rope, to a fence or post at head height. To provide the required 26 degrees slope (which is not critical) the radials and tying ropes, when sloping from a height of six metres down to 1.5 metres, will have a length of $4.5/\sin 26^\circ$, or about 11 metres. The antenna can then be adjusted for minimum SWR by adjusting the length of the radials at ground level. It is suggested that the radial lengths be cut up to 10 percent longer than the vertical and that they be looped back through an insulator to enable the lengths to be

quickly adjustable without the need for cutting or extending them.

Considering the GP aerial as a *bent-up dipole*, it would seem that several of them could be mounted on a single pole using a single feeder (as can be done with multiple dipoles). An attempt was made to mount together three GP aerials for the new 10, 18 and 24 MHz bands. The three aerials were set up about 15 cm apart on top of a six metre tilt-over pole and they, and the three sets of radials, were connected to the common feeder. It was possible to adjust the 10 and 18 MHz aerials to a low SWR and good performance, the 24 MHz aerial could not be resonated. It was then shifted to another pole and separate feeder where it performed well and exhibited low SWR. It was then shifted back to the other pair, (without alteration) where it again would not load. It was again set up separately and adjusted, and the 18 MHz aerial was moved alongside it and connected to the same feeder. While the 18 MHz aerial worked perfectly the 24 MHz aerial again failed to perform. No logical reason can be suggested for this apart from the obvious interaction between the antennas.

Another method to provide a multi-band aerial which can be quickly adjusted for each band is now suggested. The Alcan Company make aluminium tubing in sizes which telescope together. Using this tubing it is possible to make a vertical that can easily and quickly be altered in length. If three telescoping tubes, each of 2.44 metres (8') long are used, the lengths can be adjusted to —

2.4 metres approximately for 28 MHz

2.8 metres approximately for 24 MHz

3.3 metres approximately for 21 MHz

4.0 metres approximately for 18 MHz

4.9 metres approximately for 14 MHz
7.0 metres approximately for 10 MHz

A saw cut at the upper end of the lower two, plus two stainless steel hose clamps will enable the tubes to be clamped at any of the above lengths. A pair of flexible wire radials, 7.3 metres long, fitted with a screw clip at the end can be adjusted to length by looping back through an end insulator. Extra clips will be required for 28 and 24 MHz. If this aerial is mounted on a six metre tilt-over pole needing no guys, it should be possible to change frequency in less than five minutes if the correct settings of the tube and radials are marked. Tube sizes suggested are 25.4 mm (1"), 22.23 mm (7/8") and 19.05 mm (3/4").

The possibility of including a 7 MHz aerial in this set up was considered, and so a 7 MHz GP aerial was constructed. I had a 10 metre stout tilt-over pole available, fitted with a winch. Telescoping aluminium tubes of 28 and 25 mm diameter, forming an element 10.05 metres long, was bolted to the pole with the base six metres above ground and the top extending to six metres above the top of the pole to form the vertical. No guys were used. This has withstood strong winds so far, but it remains to be seen whether the top six metres of unsupported tubing will bend in a gale. It has proved very satisfactory for 7 MHz working and has an SWR of 1.1. Considered as a *bent-up dipole* it also works on 21 MHz. This has proved to be the case although it was a little short for 21 MHz and had an SWR of 1.9. By temporarily adding 0.4 metres to each radial, the SWR was brought below 1.5.

No doubt this 7 MHz GP could be made mechanically safe by the addition of guys, but the multi-band quick-change facility would be lost.

AR

RADIO EXPERIMENTER'S HANDBOOK



This first volume is 132 pages chock-full of circuits, projects to build, antennas to erect, hints and tips. It covers the field from DX listening to building radio-teletype gear, from 'twilight zone' DX to VHF power amplifiers, from building a radio FAX picture decoder to designing loaded and trap dipoles. This book carries a wealth of practical, down-to-earth information useful to anyone

interested in the art and science of radio. Your copy is available by mail order for \$7.95 plus \$1 to cover postage and handling (add \$5 to these charges for air mail postage outside Australia) from:

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AR86

A PORTABLE THREE-ELEMENT BEAM ANTENNA FOR TWO-METRES

George Cranby VK3GI
PO Box 22, Woodend, Vic. 3442

The writers normal mobile two-metre operation is carried out from his car, which is fitted with a mounting cradle, cabling for an 80 watt linear and a rear mounted, removable five-eighth whip. If this car is out-of-service for any reason — it is 16 years old — he is immobile as his wife's small car must not be modified in any way!!

This started an idea for a portable, external aerial for stationary-mobile use. And why not make a proper job of it, at the same time? Thus was born the concept of the portable three-element beam antenna. When finished it took less than 10 minutes to assemble and erect.

The 4.75 metre high portable mast consists of three pieces, 1290mm long, of 19mm (3/4") aluminium tubing, cut from a standard four metre length, and an 850mm long wooden extension to allow vertical operation. The construction is shown in Figure 1 and is simpler than it looks. The bottom end of section one was formed into a spike to grip the ground. Section two has a 120mm length of 16mm (5/8") aluminium tubing, an easy push-fit, inserted for 60mm and secured with two self-tapping screws. The protruding 60mm slides into the top of Section one. This is held in place, when assembling the mast, with another self-tapper. (Do not lose this screw when dismantling. Screw it back into Section one).

The joint between sections two and three is identical with the one just described. Sections two and three should be identically drilled, to be interchangeable; if they are not they should be clearly marked.

Section four is a piece of 16mm (5/8") dowelling — pick a good one and varnish it — one end of which has the remaining piece of 19mm tubing slipped over it for 60mm and permanently secured. At the other end of this short piece of tube insert a 120mm piece of 19mm tubing and fix. Its free end fits into the top of Section three; however, when drilling the lead hole for the assembly screw, make sure to leave a gap of 3mm to allow space for the three-way guy ring (Figure 5), which is made from suitable aluminium sheet offset.

Attach three pieces of nylon clothes line, about 4.30 metres long, to the guy ring. Make a loop at the end of each line to hold them to the ground by tent pegs.

A mast clamp, Figure 2, to hold the boom of the beam to the mast is permanently attached

to the top of Section four. It is made from a 45 x 80mm piece of some heavier (3mm) aluminium offset. Make up the two semi-circular clips to hold the boom to the mast plate. The locating screw is tightened also during assembly.

The boom (Figure 4) is made from 16mm (5/8") aluminium tubing. 3.6mm (1/8") clearance holes are drilled as indicated, for the three-elements, which are cut for 146MHz. Make sure that the holes are exactly in the same plane, otherwise your beam will look very unprofessional. The elements are kept in place by locking them with self-tapping screws at 90 degrees. Mark the centre of each element with a ring of paint, for easier assembly. On the boom itself, mark the point of attachment to the mast clamp in the same manner.

The gamma match arrangement and the connection of the feed-line are shown in Figure 3. The plastic section used is a 100mm piece of sliding cupboard door track. The gamma tube is easily pressed into one of the rails, which spring open and firmly to hold the tube. It was found that the SWR was affected by the length of the coaxial feed-line and some trial-and-error snipping was required to finally improve the tuning after setting the gamma match to optimum. Since the coaxial socket for the feed-line is permanently attached to the boom, a flexible connection, which can be detached from the gamma tube, is required. Again, do not lose the screw!

Although it may be difficult to obtain short lengths of the various tube sizes, fellow amateurs may be helpful. The actual construction of the gamma match, although fiddly, is not difficult.

GAMMA TUNE

To tune the gamma match, assemble the beam to Section four — good practice — join sections four and one and drive section one into the ground. Connect the feeder cable — about 5.50m — to the antenna and the transceiver and fire-up (on a totally unused frequency please). Climbing up and down a step-ladder,

move the position of the metal clamp or the adjustable rod, one at a time, until the SWR meter gives a good match.

STEP-BY-STEP FIELD ERECTION PROCEDURE

Assemble mast.

Assemble director and driven element to boom.

Gently free end of boom through the mast plate clamps. Tighten first the clamps and then the locating screw. Make sure that the beam is either in the same plane as the mast (vertical polarisation) or at 90 degrees to it (horizontal polarisation).

Assemble reflector to boom.

Connect flexible from coaxial socket to gamma tube.

Connect the feed-line.

Fix the ends of two of the guy lines to the ground with tent pegs, about 3.4 metres apart.

Gently push up the mast until the two lines are extended and the mast is reasonably vertical.

Holding on to the third guy line take it to the 120 degree position relative to the others and secure by a tent peg.

Correct the mast position to be properly vertical; push it about 20mm into the ground to stop it from turning with every gust of wind. You can rotate the beam by hand due to the free guy ring.

Connect the feed-line to the rig and start operating.

My wife made me a carry bag from canvas, 1000mm long and 80mm in diameter. It comfortably accommodates the whole antenna. Do not forget to put in a small screwdriver to tighten all the assembly screws; it has also been found handy to carry a few spare self-tapping screws and some extra tent pegs — they have a habit of disappearing in deep grass.

AR



QSP

WATCH YOUR SIDEBAND

It would appear that DOC Monitoring Stations are paying particular attention to amateur transmissions in the 80 metre DX Window, of 3.734 to 3.800 MHz, as several amateurs have recently received warnings from DOC that their sidebands are out-of-band. Not knowing whether the dial readout indicated suppressed carrier or centre of sideband frequency is not an acceptable excuse.

Most commercial amateur transceiver readouts indicate suppressed carrier frequency, therefore any operation below 3.797 MHz has a very good chance of some LSB products being out-of-band

and causing harmful interference to commercial services on 3.793.5 MHz. Excess power levels also will increase your chances of causing interference to commercial services on channels adjacent to the window.

Amateurs using the 80 metre DX Window are requested to be extremely careful of their operations and give a friendly word of warning to other operators who have strayed too close to the band edges. It would be a pity to lose this segment due to the carelessness or selfishness of a few operators.

STOLEN EQUIPMENT

Hai Vise VK2HW, has lost a Yaesu 209RH hand-held transceiver, serial number SK190401. Anyone locating said transceiver or knowing whereabouts of same please contact your local Police Station or Balmain Police Department.

THIRD PARTY TRAFFIC

Information has been received from the Department of Communications regarding Third Party Traffic in Papua New Guinea.

The Department wrote to the PNG Post and Telecommunication Corporation seeking their views on the possibility of obtaining an agreement concerning Third Party Traffic by amateurs of Australia and PNG.

The PNG administration replied that it is not their policy to permit TPT in the amateur service except in special circumstances. In addition, their present licensing conditions and regulations prevent PNG entering into an international third party agreement with other countries.

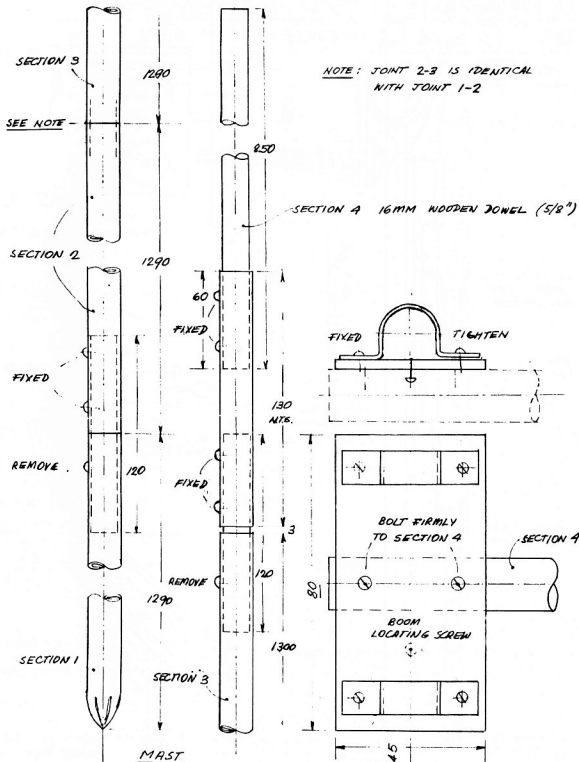


Figure 1 (Half Size).

Figure 2 — Boom Clamp Bracket (Full Size).

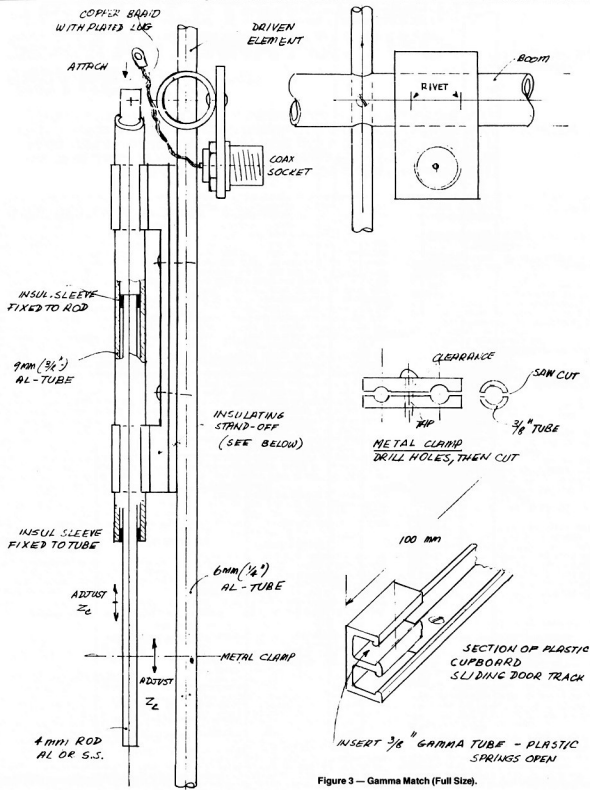
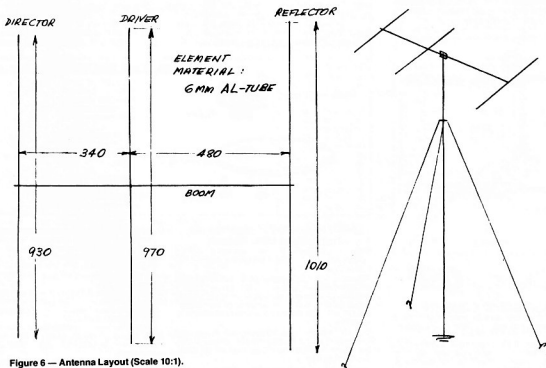
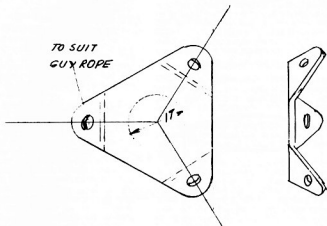
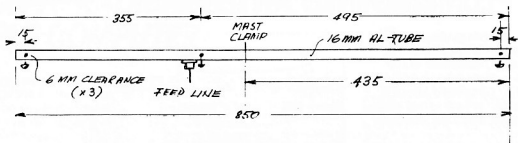


Figure 3 — Gamma Match (Full Size).



PLUMBING INTO ANTENNAS!

H Fietz VK7HH
72 Walter Street, Bridport, Tas. 7254

Whilst experimenting with a side-fed delta loop antenna, which was published in the second antenna book of RAA, the writer pondered about a connection which is not only removable, but also weather-proof.

I didn't have to think too hard, because my trusty "plastic plumbers delight" connection box, which has been used for a number of years, certainly came in handy.

Just a few small modifications were necessary on this occasion. The little gadget, which was constructed, is totally weather-proof, has plenty of room inside to accommodate a balun, as well as only being used for termination into coaxial cable. I have three in use at the moment and a couple more on the shelf.

My ended wire antenna goes through one of these "pots" also and the banana plug is easily disconnected when a threatening thunderstorm is approaching. As I am so happy with this termination arrangement I thought it might entice some other amateurs to try this too. The costs are around \$6 to \$7 including the PL256 plug.

As the accompanying diagrams indicate, there is nothing really that needs explaining. It is simple and made in no time at all, even by people with two left hands. It is necessary to use plenty of PVC glue around the cap to ensure no water can enter around the joint. It may also be a good idea to use some silicone rubber around the screws and lugs, but it must be of the non-acid type.

The ventilation hole in the disk is of importance for releasing air which expands when the sun is heating the "can".

AR

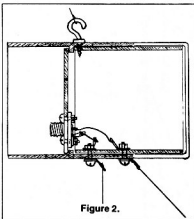
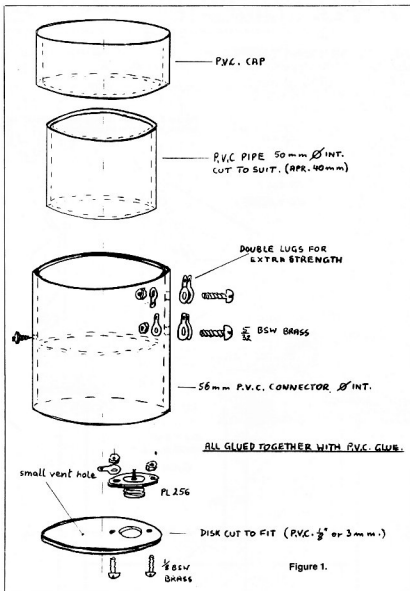


Figure 2.



By the end of the decade more than half of Britain's workforce will regularly use computer terminals.

Already, about 1.25 million Visual Display Units (VDUs) are already in use and sales of word-processors, personal computers and larger systems continues to grow.



ADDENDUM to Propagation via Reflections from Aircraft

Page 4, Column 3, last sentence before "Observations"... even though this may BE the rest of an aeroplane.

Page 4, Column 3, Observation 6, last part of third paragraph should read "... is not clear whether or not turbulence is always reported when aircraft enhancement is poor, or whether or not aircraft enhancement is always poor when turbulence is reported".

Page 5, Column 1, first full paragraph should read "In the case of Sydney stations although they are heard in Frankston earlier than AT VK3UMs, the time difference..."

Page 5, Column 1, Observation d, third paragraph

should read "In any case what exceptional lift conditions? Between Canberra and Melbourne? Sydney and Melbourne? Both? Or between Sydney and Canberra perhaps?"

Page 5, Column 2, first line of text below Figure 1b, should read "In Figure 1b a REFRACTIVE layer of air..."

Page 5, Column 3, Figure 1c — "It isn't labelled".

Page 6, Column 1, first paragraph after Signal Strengths should read "... his suggestion that SAY VK1BGs signal..."

Page 7, Column 1, paragraph a after "Consider the following" should read "Obviously if the distances DECREASE the path loss will decrease".

Page 4, Column 1, the formula for effective area of an isotropic antenna is — $\lambda^2/4$.

RECEIVE RADIO-TELETYPE ON YOUR APPLE COMPUTER

David Armstrong VK3PNL/VK3XJP
PO Box 467, Portland, Vic. 3305

This program was especially designed for the Apple II Plus Computer however, it should work on any of the Apple II series of computers.

With a simple bit of software, a signal demodulator and an HF receiver, you can convert those funny warbling tones, so often heard on the amateur bands, to text on your Apple II computer screen.

The following program was designed for the Apple II plus computer, but should work on any of the Apple II series of computers. The program is written entirely in 6502 machine code, the Apple's native tongue, and will decode RTTY at the standard 45.45 Baud — but more about that later.

Before the computer can read the RTTY signal from your receiver, a piece of hardware known as a demodulator must be used to convert the audio tones from the receiver into TTL type 'logic' signals that the computer can understand. No construction details of such a device are given here but you shouldn't have any trouble locating one in various magazines and text books, that if you don't have, you may be able to beg, borrow or steal.

There is no need for a "peripheral card" to be plugged into your Apple for this project. Instead, the power for the demodulator and the signal from the demodulator are connected to the standard Apple "Game Control Port". This is a 16 pin IC socket, located on the rear right-hand side of the mother-board. Connection to this is easily made with a 16 pin DIP "Header" plug. Positive power is available from pin one and negative is at pin eight. The signal from

the demodulator is connected to the 'Push Button # 0' or 'PB0' of the game port and is pin two.

The program is written in 6502 machine code for an Apple II with a phase zero clock frequency of 1.023 MHz.

Pin two on the Apple game I/O connector is actually a one bit input port, which controls the logic level of bit seven at memory location \$C061. If pin two of the same port is connected to ground, then bit seven of location \$C061 will be at logic zero. If pin two of the game port is connected to +5V, then bit seven of location \$C061 will be at logic one. Due to the nature of the TTL ICs, the inputs behave as if they are at logic one when they are left unconnected.

PROGRAM OPERATION

The program starts off by looking at memory location \$C061, associated with pin two of the game port, until a start bit, logic zero, is detected. This starts off the following chain of events.

First, a register of the 6502 microprocessor, known as the Accumulator, is set up to act as both a counter and a store for the received teletype.

A delay of one half of the time taken for one data bit to be received, 11 mS in the case of 45.45 Baud, is then executed. After this, the received signal is in the middle of its start bit. A delay of the time taken for one data bit to be received, 22 mS in this case, is then executed, so as the received teletype is in the middle of its first data bit.

The logical value of this data bit (0 or 1) is then read and stored in the bottom end of the Accumulator, moving everything already in there one place to the left to make room.

A one bit time delay is then executed, to put the received teletype signal in the middle of its

next data bit. The logical value of this data bit is then read-in exactly as before and the process continues until all five data bits have been read.

Once this is done, the Accumulator contains in its first five bits, a binary number between 0 and \$1F hex. This value is then checked to see if it is a figures shift (\$1B) or a letters shift (\$1F). If it is a figures shift, then memory location \$0803 is set to \$20. If it is a letters shift, then memory location \$0803 is set to \$00.

Next, an index into a table of ASCII equivalent characters is calculated and the appropriate ASCII character is selected from the table and outputted to the computer's video screen.

The program then goes back to the start to look for another start bit and the whole process is repeated.

ENTERING THE PROGRAM

The program is entered with a machine code assembler, or from the Apple's machine code monitor program.

IN OPERATION

In use, a RTTY signal at 45.45 Baud must be tuned in on a fairly stable receiver with the capability of resolving Single Sideband (A3J). The receiver is generally set to Lower Sideband and the receiver is tuned until the demodulator 'locks-in' on the signal.

If garbage is printed out, shift to the other Sideband and re-tune the receiver, as the station may be transmitting an inverted signal. If there is still no success, you may be listening to a station using another Baud-rate, it may not be five bit RTTY, the message might be coded, or the station has a frequency shift that is unresolvable by your demodulator. Note also that noise, either from your receiver or your computer, can seriously affect the signal.

[illegible]

INTRODUCING BY4

ABLE OLD MEN

Jim Linton VK3PC

4 Ansett Crescent, Forest Hill, Vic. 3131



CHINA



BY4AOM

AMATEUR RADIO STATION
SHANGHAI INSTITUTE OF ELECTRONICS

OLD TIMER HAM RADIO CLUB STATION BY4AOM



**BY4AOM members — C1TH; C1HT; C1TH
XYL; XU8EC; C1MK; C1SP; C1HY; C1CH;
C1GC and C1ZZ. XU8WM was absent when
the photograph was taken.**

The antenna is mounted on top of a four storey building at the Shanghai Institute of Electronics and is about 25 metres above ground. It is fed with 300 ohm television ribbon, which goes into the transceiver via a home-brew transmatch and SWR meter.

The Club has plans to open a class to train high school boys and girls aged around 15-years to become radio amateurs. John said that the old boys plan to get amateur radio started in some of the universities and colleges in Shanghai.

BY4AOM's Chief Secretary, Tang Zung-ye (Tom), ex XU8WM, said he would welcome any technical books or magazines for the Club's library and youth training project. Their postal address is PO Box 227, Shanghai, China.

AR

JOHN MOYLE CONTEST 1986

During the 1986 John Moyle Memorial Field Day Contest, Gil Griffith VK3CGG ventured to the Mount Buffalo Chalet, at an altitude of 4500 feet, to operate and participate in the Contest. Gil's forte was Section B, transmitting in Morse. This was his third entry in a contest since obtaining his AOPC in December 1984.

Conditions were too windy to erect a 160/80 metre vertical, but an 80 metre dipole with a tuner worked well on all bands, except 160 metres.

Eighty contacts were made, but the lack of numbers in Class B was quite disappointing.

Gil used a 90 amp/hours battery which was on-charge (1 amp) all day on the Saturday and Sunday, and the battery was down to 11.5 volts under full load (20 amps), however, most of the

time it was only using 700 mA on receive and 9 amps on transmit with 20 watts output. He operated from 0600 UTC Saturday to 0600 UTC Sunday, with four hours off for a nap and some breakfast, when the bands were quiet.

The Chalet Manager, Mr Michal Alstin, was most co-operative with the whole exercise and has also kindly provided Gil with some postcards, which he will be using as QSL cards.

AR



John, ex-C1TH.

John reflected that there is no doubt that the hobby of amateur radio is not only a highly technical past-time but its activities promote the friendship and understanding between people of different nationalities and beliefs.

The BY4AOM QSL card has two lines of ancient Chinese script. One means *Within four seas there are bosom friends* and the other *People in the remotest corners of the world are neighbours*. How fitting to have this touch of age-old Chinese culture on the QSL card.

The stations main rig is a TR7 100W transceiver. Club members have home-brewed a two element four band (20, 15, 10 & 6 metre) boomless cubical quad antenna and rotator.



Mount Buffalo Chalet.



The Operating Positions.

OPERATING IN IRAQ

This article began in early 1984, when Ray VK5DI began corresponding with Saad YI1BGD, to confirm that individual licences had been issued in Iraq. Amateur radio history in Iraq was rather sketchy and Saad, and others intended using Ray's call sign, YI2FD, as a precedent in an attempt to have individual licences issued again. Ray used ex-military equipment whilst operating YI2FD during 1952-53, and during his stay in Iraq, witnessed one of the other amateurs worked WAS in 48 hours (48 States in those days). In early 1984, Lajos HASDW, spent some time in Iraq assisting the radio club install equipment and antennas.

In early January 1984, Lajos HASDW landed at Baghdad's modern airport. Lajos was a member of an eight-man crew from a Hungarian company. Over a period, Lajos had worked many operators through the Iraqi Club Station, YI1BGD, and was now eager to meet with these operators.

The first meeting was with Majid Abdul Hameed, a founding member of the Club and a pioneer in Iraqi amateur radio. On the way to the radio station, Majid explained that in the capital city's two Institutes there are 60 different special spheres of interest — amateur radio is one of these interests.

After great efforts, the amateur group began in the 1970s, but few knew what this hobby was all about. The station was heard on the 20 metre band using a donated Atlas 210 and a home-brew two-element quad antenna.

Upon arriving at the radio station, Lajos was amazed at the comfortable, well furnished radio room, complete with Drake equipment (a donation from King Hussein JY1). The station had a Drake 2KW linear and Yagi, donated by the NCDF, for the upper bands.

During the afternoon, Lajos was invited to use the station and was pleased to work many Hungarian stations and was henceforth able to pass news of his well-being to his family at home.



From left: Majid, Kamal, Arshad and Saad, operators at YI1BGD.

In the evening, Lajos presented Majid with Morse cassettes and an amateur atlas of antenna designs and Majid discussed his future plans for the station and for amateur radio in Iraq. Majid hoped to attain call signs from YI1-8 according to the eight provinces, YI9 for visitors and YI0 for special stations.

The group made wire antennas for the lower bands and a delta loop frame, ready to mount on the mast, for 40 metres, the biggest problem was to locate a mast. Finally one was acquired in a most unusual way. A Hungarian team of mechanics were invited to a "Goulash Party" to celebrate the completion of the installation of

IRAQ DIRECTORATE GENERAL OF POSTS & TELEGRAPHS

No. ~~25566~~ 26566
Baghdad, dated, the 28 August, 1982.

To:-

Mr. Robert George Raymond Dobson,
British Royal Air Force,
HABANIYA.

Amateur Transmitting Licence

Reference your application dated 9/5/1982,

I enclose herewith an amateur transmitting licence for the period of one year from 1/8/82 upto 31/7/83.

Will you please acknowledge receipt.

for DIRECTOR GENERAL OF POSTS &
TELEGRAPHS
IRAQ.

Ray's YI licence.

Amateur Radio Station

YI2FD



Ray's QSL card.

an air-conditioning plant a month ahead of schedule.

After a week of amateur activities, Lajos spent a day of exploring the ancient Mesopotamian culture of Ninive, Samarra, Hatra and of course Babylon. Further time was spent writing QSL cards and summarising a list of HA stations worked. During the course of the evening, Lajos explained the problems he was encountering in trying to locate a suitable mast. Next morning a truck arrived complete with five telescoping masts.

Eventually all equipment and antennas were installed, and tested. Lajos called CQ on 10 metres and within minutes had logged several stations. During one contact with an HA station, Lajos was informed that Spring had arrived in Hungary which made him feel very homesick as he was experiencing temperatures in the 40sC, much hotter than what he was used to in Europe.

During the visit to Iraq, Saad told Lajos of one of the first amateurs in Iraq, King Ghazi. In 1937-38, he operated a broadcasting station

until his untimely death in a car accident in 1939. Saad also told of Ray VK5DI/YI2FD.

Finally, Lajos' contract had expired and it was time to return to Hungary. Goodbyes were said with the hope of meeting again, even if only through the air-waves.

Compiled from information supplied by Lajos Lewis Nagyvati HASDW, Saad YI1BGD and Ray Dobson VK5DVG/3JDO (ex YI2FD and SU1FD).



Lajos at home in Hungary.



QSP

DEFENCE GOES DIGITAL

Australia's armed forces are upgrading their communications for the 21st century. The local telecommunications industry has negotiated defence contracts valued at \$575 million.

Projects include a common users message-switched network, and a digital secure voice, data, facsimile and telegraph system. Advanced microprocessor controlled manpack and vehicle radios will also be introduced.



VHF UHF — an expanding world

Eric Jamieson VKSLP
1 Quinns Road, Forrester, SA. 5233

All times are Universal Co-ordinated Time and indicated as UTC

AMATEUR BANDS BEACONS

FREQUENCY	CALL SIGN	LOCATION
50.010	JAZIGY	Mie
50.020	JAGYBR	Japan
50.060	KH6E01	Honolulu
50.070	V6SIX	Hong Kong
50.109	JOTYAA	Japan
51.020	ZLUMH	Mount Clime
52.013	P29BPL	Loisat Island
52.010	FK8K AB	Noumea
52.100	K2SIX	Nile
52.200	VK8VF	Darwin
52.250	ZL2VHM	Manawatu
52.310	ZL5MKT	Moitry
52.320	VK6RTT	Wickham
52.325	VK2RHV	Newcastle
52.370	VK7RST	Hobart
52.410	VK2SXY	Sydney
52.425	VK2RGB	Cunneah
52.440	VK4RTI	Townsville
52.450	VK5VF	Mount Loffy
52.460	VK6RPR	Nedlands
52.470	VK7RNT	Launceston
52.485	VK8RAS	Alice Springs
52.490	ZL3SIX	Blenheim
52.510	ZL2MHF	Upper Hutt
144.010	VK6RBS	Port Hedland
144.020	VK4RTT	Mount Mooloolan
144.010	VK1RCC	Canberra
144.020	VK2RST	Sydney
144.065	VK6RTW	Albury
144.080	VK8VF	Darwin
144.085	VK8RAS	Alice Springs
144.550	VK5KSE	Mount Gambier
144.555	VK6RBS	Port Hedland
144.600	VK6RTT	Wickham
144.800	VK5VF	Mount Loffy
144.950	VK2RCW	Sydney
145.010	VK6RPR	Nedlands
432.057	VK6RBS	Busselton
432.160	VK6RPR	Nedlands
432.410	VK6RTT	Wickham
432.420	VK2RST	Sydney
432.430	VK4RBS	Brisbane
1296.171	VK6RBS	Busselton
1296.420	VK6RST	Sydney
1296.480	VK6RPR	Nedlands
10350.000	VK8VRF	Rockyvale

seven watts output. Congratulations! Both operators hope this contact will lead to others taking more interest in the 23 cm band.

MOUNT ISA JOTTINGS

Steve VK4KHO, writes from Mount Isa; "I enjoy reading your column in AR as it is interesting to see what we are missing out on!"

A recent exception was on 2nd January 1986 from 0150 to 0200 UTC when I heard VK4KD calling on the Gold Coast Repeater, which also accessed VK4RMI here in Mount Isa. Although I heard strong, but intermittent snatches of the QSO, no QSO was made. Maybe next time.

"Also, the more I read about aircraft enhancement experiments, the more seriously I consider Mount Isa's position with relation to international flight paths and schedules to form a reliable monitoring pattern."

"With regard to six metre propagation, the 27 MHz CB band provides saturation coverage of VHF and regular listening gives reliable indications of short skip conditions. Sometimes 15 metres is dead while the CB band is roaring with QRM proving where the MUF really is. Those scanning 15 metres declare the band dead!"

Thanks for your letter Steve. You are out on the proverbial limb to some extent in Mount Isa, particularly for two metres, but keep in mind the domestic FM band, 88-108 MHz, as a starting point for a rising MUF; and December 1986 should be another good year for long distance, two metre contacts, just like 1985.

END OF AN ERA IN DARWIN

A final letter has come from Graham VK8GB, indicating he was leaving Darwin on 26th February 1986, for a short holiday in Singapore and Hong Kong and then it was down to Canberra to commence work in his new position on 18th March 1986. He includes confirmation of QSLs from VK9ZB and VK9LC and hopefully with confirmation soon to come for ZMBOY will mean his six metre final tally from Darwin would be 42 countries.

That's a great effort and indicates, despite our somewhat unfavourable position on the globe, compared with the Northern Hemisphere, which means often more kilometres to be covered for a contact. Graham nevertheless has shown that from a position in Darwin, probably more favourably situated in many ways than southern areas, has, through his own vigilance and dedication, topped the Australian list for countries worked and confirmed on six metres. Congratulations! In the July 1986 issue of AR, I will tell you what countries Graham has worked, the first contact being on 11th October 1977 and the last on 29th December 1985.

Naturally, Graham is going to find an entirely new ball game while in Canberra, but I am sure he will be making his presence felt. Opportunities will exist for him to add to his two metre tally, as well as operation on the higher VHF and UHF bands. Wherever you operate Graham, we all certainly wish you well and you for putting Australia on the VHF map of the world, firstly on six metres for such a great countries score, and secondly for so many contacts into Japan on two metres. But that band to Japan from Canberra might be harder!

SIX METRES IN THE UK

From 1st February 1986, all Class A licensees in the United Kingdom gained access to the six metre band between 50.000 and 50.500 MHz. (See full report page 3, February AR). Some restrictions have been placed on the power and antenna used, also, depending on where the amateurs live, there will be some restrictions, but operating time limits have not been imposed. All this is possibly for an interim period while the

authorities study the impact of the opening of the band, particularly as it applies to possible interference in other countries of Europe still using the six metre area for other services.

Some of the limitations imposed make interesting reading. The power limit is restricted to 25 watts on CW and FM, and 100 watts PEP for AM and SSB, and this is ERP, or effective radiated power. Thus antenna gain and feed line losses need to be considered. Antennas are to be horizontally polarised and no higher than 20 metres. No mobile or portable operation is permitted, so no field days from hilltops! Considering power and antenna limitations, it would seem most stations will be operating in the 10 to 25 watts region, which will still be quite adequate for a lot of contacts, even as far away as the USA.

High power stations on the European channel 2 have 100 kW in Germany, Norway and Sweden, with the closest station being a low power device in Antwerp, Belgium, which fortunately, is vertically polarised, thus reducing interference from the amateurs. Effective beam antennas, directed towards the USA, should help keep interference to Continental television stations to a minimum and thus ensure continued use of the 50 MHz band for our UK friends. It would be great to have them still operating when the next solar peak comes along, probably about 1990. Let us hope too, that our own house can be put in order before that time comes; it was a most depressing situation for VK amateurs to have to sit by and listen to some exotic overseas stations on 50 MHz while we were limited to 52 MHz. Having, to a large extent, missed out on one of the greatest and widespread solar peaks of our time, we can only hope common sense will prevail and we will be careful use of 50 MHz for the next time around.

ANTENNA STACKING

From The West Australian VHF Group Bulletin is a drawing and brief description of a device called a Coaxial Junction Box which can be used to feed up to four outputs from a single input connector. It is a lower cost alternative to the usual N-type connectors for harnessing VHF and UHF stacked arrays, the cost being around 30 percent of the N-type connectors it replaces. The device is made by Acme and could be worth investigating. Although no design parameters are mentioned, the drawing tends to indicate a well-made device.

ANOTHER THREAT TO SIX METRES

March 1986, GST and the World Above 50 MHz is where Bill Tynan WX3O expresses concern over a proposal filed by Donald Stoner W6TNS, where his petition calls for the re-allocation of 52 to 54 MHz from the Amateur Service to, what he calls, The Public Digital Radio Service and is envisioned by Stoner as some kind of super packet system of specially designed transceivers attached to personal computers. He refers to them as Radio Modems which would exchange data at a very high rate, which explains the need for two megahertz of spectrum space to accommodate a single channel. Many users would be able to occupy one channel probably through time sharing. Data would be relayed through whatever series of radio modems would be necessary to get to the addressed unit.

The radio modems would include a power-management feature enabling each to adjust power from a maximum of one watt down to a few milliwatts, the automatic selection of level being that necessary to maintain contact with the next unit in the net. Bill says; "One wonders what a person not having another radio modem within relay range would do?" W6TNS's petition states he selected the six metre band because "it is essentially unoccupied" and use of frequencies in this part of the spectrum would make the radio

(1) & (2) According to a note in the West Australian VHF Group Bulletin, February 1986, from Bob VK8KRC, Peter VK8ZLX has commissioned a pair of VHF beacons at his work QTH in Alice Springs. The six metre beacon is operating on 52.485 MHz with 12 watts output to a half-wave vertical antenna. The two metre beacon is on 144.485 MHz and runs 10 watts into a quarter-wave whip. The present location is temporary, and Peter hoped to re-locate them at West Gap early in March, at 900 metres above-sea-level, with stacked cross dipoles on both bands.

The identification sequence is repeated three times per minute: CARRIER — VK8RAS — ALICE — CARRIER —

Peter is keen to work two metres into Perth so, hopefully, this will become an accomplishment in due course and the beacon should aid any attempts.

1296 MHz FROM GERALDTON

Also from the same VK6 VHF Bulletin came news that, on 3rd February 1986, what is believed to be the first 1296 MHz contact between Geraldton and Perth took place, over a distance of nearly 400 km, at 1157 UTC.

Bob VK6ZF, operated portable from a location 7 km north of Geraldton and contacted Phil VK6ZKO, portable at Woodmans Point, Coogee, firstly on 70 cm at 1146. The change was made to 1296 MHz and signal reports were exchanged each way at 5x7.

Both stations used a TS700A, feeding a 23 cm transverter, each to a 28 element Yagi. VK6ZF used two watts output, VK6ZKO had

modems cheap.

The ARRL has filed a strongly worded brief opposing the Stoner proposal. It takes exception to deleting half of the amateur six metre band to create the new service when the Amateur Radio Service already makes use of repeat radio which enables the inter-connection of home computers. They also dispute the contention that the six metre band is essentially unoccupied. There may be periods of low level activity but the interest generated in the band, especially during the peak of the last solar cycle had to be observed to be believed.

While this may essentially be an American problem at the moment, it is almost certain such moves will not remain there. I bring the above information to the notice of the Australian six metre fraternity as a timely warning on how it is possible to erode portions of a band in the interests of some new technology. One should not stifle the development of anything that is new and worthwhile, but there needs to be very solid justification for the establishment of a mode of operation which demands two megahertz of a world-wide amateur band. No doubt, it is cheaper to build something for use in six metres, but if that degree of spectrum space is required, then it seems the use of frequencies higher up in the scale must be considered. After all, the CB users were given the 470 MHz band when they went to FM (a wide band mode) and have had to accept the limitations imposed by higher cost, reduced operating distances, etc, but the CB UHF band has proved an unqualified success despite these limitations. It is to be hoped the Stoner proposal receives enough flak to ensure it does not become established in the six metre band, either in the US or anywhere else, for that matter.

NEWS FROM ESPERANCE

David Lloyd VK8AOM, at 23A Butler Street, Esperance, WA, 6450, has written the promised letter which I asked for during a six metre contact last December. Whilst he says some of the news is somewhat dated, the fact that he is 1485 km from Adelaide instead of the 1865 km from Albany, the saving of 400 km on the path might generate more than a passing interest to those operators who are ever ready for contacts across the Great Australian Bight.

"Too little, too late, sums up a lot of amateur operation and despite a shift of QTH to Esperance in December, construction and erection of an antenna system followed the usual rule, expressed above. So it was late December when I at last managed to place my eight element Yagi on six metres at a height of 10 metres.

"This, prompted by the acquisition of an FT480, provided me with a great six metre season. From 1912 to 31/12, I worked 90 stations including 30 VK5s, six VK4s, 20 VK3s, 10 VK2s, two VK1s, four VK7s, four VK8s, and ZL. January netted a further 300 contacts including 2P9QA and a VK6! Some of the contacts into VK8 provided incredibly strong signals.

"Naturally, through all this, the question most often asked was: 'Have you got two metres and 70 cm?' The answer was yes, but unfortunately the antenna systems were still on the ground. The only operational systems I had were mobile — a stacked five-eighth collinear on 70 cm and a quarter wave on two metres, on the car! Still on the ground were four 12 element wide-spaced Yagis for two metres, and four 12 element Yagis for 70 cm. After building new power splitters for both bands and commandeering a football team, who were having a barbecue next door, my array was in the air — but again, too late!

"On 24th January 1986, I was tuning a six element Yagi for 70 cm on my front veranda; after getting the SWR down to 1.06:1, I laid the antenna on the ground and killy tuned the FT780 to 432.100 MHz. To my amazement, I heard signals! By holding the Yagi in one hand and the microphone in the other, I worked VK5ZVG! This prompted a rapid trip up Wireless Hill, at the other end of town (towering fully 60 metres above Esperance), and using my FT480 and FT780, with the mobile whips, worked VK5ZDR, VK5ZGV, VK5ZTS and VK5ATD on 432.100 MHz, as well as VK6BE, VK5ZGV, VK5ZTS and VK5RO on 144.100 MHz on SSB.

"Flushed with this kind of success, I built a six element Yagi for two metres next morning and returned to Wireless Hill in the evening to try again. The band was magnificent! I worked the following on 144.100 — VKs 3ZBJ, 5ZMJ, 3KAJ, 3ZAT, 3ZL, 3NM, 5ZBU, 5NY, 3UV, 3AQR, 3KEG, 3ZOB, 5RO, 3WV, 5ZVA, 3ZYN, 3RK, 5BWI and 3KKXW. On 432.100, I worked VKs 5AEI, 6DM, 5ZMJ, 5ZDR and had several dual contacts with the stations listed. Power out on both bands was 27 watts PEP.

"On Australia Day, 26/1, I took my 432 MHz linear along plus the two six element Yagis I had recently built and my log lists on 432.100: VKs 5ZDR, 3KAJ, 3ZOB, 3KAQ, 3ZBJ, 3BDL, 3AJI, 3ZYN, 3AHJ, 3NM, 5NY, 5RO, 5ZMJ and 5ATD. On 144.100 there were VKs 3BDL, 3AZY, 3AMZ, 3ABO, 3AU, 3KKD, 3KKXW, 3DQJ, 5RO, 3UV, 3KAQ, 5ZMJ, 3ZBJ, 3KAJ, 5ZRG, 3AMZ, 3NM and 3DFI. All contacts were on SSB on both bands.

"I have received a number of QSLs direct — my address is not correct in the Call Book. For convenience the correct address is as below.

"In the interim, I have finished my eight by 15 element Yagis for 70 cm and have acquired two commercially built push-pull 4CX250BC transmitters and have one on two metres already, and I am building a K2RIW amplifier for 70cm in the other. I also have all modes on 1296 MHz but the final in the linear has died and until I can replace it I will have only 10 watts output. If it was not for the interference which work provides, I would have antennas built for 1296 also!

"I am up and running on OSCAR-10. For the record, all antennas are fed with Heliax and I have masthead amplifiers for all bands. I will be happy to sched anyone for the winter DX season and look forward to summer 1986. QSL information: C/o Radio 747, Esperance, WA, 6450".

Thanks for the letter David, it will give readers an outline of the potential of your station which must be placed in the category of being exceptionally well set up. I hope your present success will stir more to try and work you, especially with the 400 km bonus in the shorter distance.

As so happens with my further inland location, whilst all that great activity was going on between David and VK3 and 5, I had to be content with sitting on the side hoping the conditions would shift further inland, but they did not, hence I missed out again. My 60dB mountain attenuator was firmly in place as always on 70 cm.

NEW SA TWO METRE RECORD.

I mentioned in the March issue that a brief two metre opening had occurred between VK5 and ZL which enabled a number of stations to work ZL for

the first time. My note book at the time carried a comment that a vague report had been received of a station in Woomera working ZL on two metres. Not being able to verify the comment I did not mention it.

However, it does now appear that on 16th January 1986, Neil VK5ZEE at Woomera, did in fact work ZL1HH, which upon verification will stand as a new two metre record for South Australia. Exact distance is unknown but would be around 3400 km which eclipses the former record held by Hughie VK5BC to ZL2HP at 3149 km set on 23rd December 1965.

I have not been able to contact Neil direct, but I telephoned Don VK5ZRG, at Whyalla who was able to confirm that the contact had been discussed on the local repeater with Neil participating so it seems authentic. We offer our congratulations to both parties for such an effort and I expect to hear more in due course when the record is confirmed.



Geoff XE1GE, a well-known six metre operator.

Six metre QSL Cards on the Shack Wall at JA4MBM.



GENERAL NEWS

I am again holding over the letter from John VK5UL, regarding his early operations on the five metre band. I need more space than is available at the moment so will include same as soon as possible.

The photograph of QSL cards on the shack wall at JA4MBM carries many familiar six metre call signs and you may find it of interest to study it. I am indebted to Graham VK8GB, for this and also the one of Geoff XE1GE, a very well-known six metre operator who has worked many stations in Australia. I have had at least four contacts with him.

Generally speaking the VHF bands have been relatively quiet this month. This is not unusual after the Es summer period. What I do find interesting is how rapidly the Es seem to die out or else the operators tire, but the lead up through October and November sees quite a few good openings around the country, culminating in the best periods in December and early January. But come mid-January and the six metre band seems to flop and that is it for another nine months, except for an occasional opening which can come at any time.

Alterations to the Six Metre Standings must be on my desk by 15th June if you want to be included in the August update. And while on six metres, there were a lot of on-air comments regarding the pros and cons of the Ross Hull Contest but I have not had much feedback yet with your suggestions for improvement. Is it going to be left to the last minute again? ? ?

Closing with the thought for the month: *Confess you were wrong yesterday; it will show you are wise today.* 73 — The Voice in the Hills.

AR

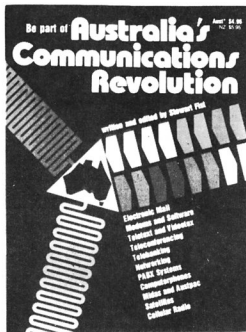


Amateurs that attended the Maitland Mob get-together. From left to right — front to back: VK2a KQ; KF; DH/P; VO; PZ; TY (jnr); TY (snr) was 2SH; UI; XT was BH; AMM; CW; YJ was AJE; AJV was EP; XQ; ZC; GH was XH; CX was JE; KZ; KB; KG; AHA; OS; AAX

was AGY. The receiver in the photograph is a 1922 home-brew unit. The gentleman in the dark jacket, mid-front is Russell Troy. He is not an active amateur now but still does his own shopping on a push-bike.

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How's DX?

Ken McLachlan VK3AH
Box 39, Mooroolbark, Vic. 3138

Well! The ARRL are now going to allow DXCC credit for 18 and 24 MHz! My personal thoughts are that I cannot agree with the ARRL Directors decision to allow this DXCC credit and apparently any applications can be backdated from the inception of the usage of the band in that country.

A lot of readers will say that I do not agree with anyone and they are probably right but this move is inconsistent in my book. As yet, not everyone has the privileges of these bands that were won for us by the amateur societies throughout the world. Also, not all amateurs have WARC band facilities on their transceivers, although transmitters may be easily and cheaply made. And finally, not all countries that have allowed these bands to be released to the amateur service are consistent in their band planning across these segments of the spectrum.

I feel that these bands should be left out of DXCC until all DXCC countries grant the privileges and that the frequency segments are uniform. Then if it is really necessary and only if, allow it from a period in advance of the announcement date. By doing this it will be an achievement that will be appreciated by the amateur fraternity as a whole not the minority.

160 METRES

It is interesting to note that as of 1st August, this year, Hungary will be authorised to use the 160 metre band.

DON'T BE CAUGHT

It appears that the number of amateurs have been receiving correspondence from the DOC with reference to the DX window in the 80 metre band where an alleged number of stations have been out of the band.

No transmission is to be outside the limits of below 3.794 MHz or above the upper band edge of 3.800 MHz. For further information refer to the QSP in this issue and learn how not to get an unsolicited questionnaire from DOC.

This also applies to the band-edges of other bands.

CLIPPERTON — Not so Quiet?

French owned Clipperton Island, a tiny atoll 600 nautical miles east of Acapulco, will be fitted out as a stopover and shelter for the tuna-boats and sailboats navigating through that part of the ocean, according to an announcement from the French Government. The idea was first discussed by Dr Andre Rossfelder, president of an exploration company based in La Jolla, California.

Work needing to be done on the atoll will consist of reopening an old pass on the north-east side of the atoll, dredging a berthing area in the lagoon, building a pier, and cleaning up an old WWII American airstrip.

Before this development begins an exploration program will be conducted by a Mining Syndicate on Clipperton. (In 1975 it was discovered there were phosphate resources and precious metals in Clipperton's sulphurous lagoon).

Clipperton is small, uninhabited inhospitable, and the only atoll in that part of the ocean. But, to Californian fishermen and yachtsmen heading for the south-eastern Pacific it is a welcome landfall, a rocky out-cropping in the shape of a ruined castle which allows them to check their navigation but, at present, anyway, does not invite them to call.

The island was formally claimed by France in 1858, but was assumed at the time by many to have been already a US possession under the 1856 Guano Act.

Mexico counter-claimed it in 1897, but an arbitration by the King of Italy finally validated the French claim in 1931.

Despite its remoteness and barren aspect, Clipperton has a rich history intertwined with the history of California, USA, from the voyages of Drake and Dampier, to the adventures of the 19-century guano-seekers of San Francisco, on to the presence of the US military during WWII.

One of the most intriguing tales of all concerns a visit by the American battleship, the USS YORKTOWN, in 1917. The shore party found a group of Mexican women and children, survivors of a long-forgotten Mexican army garrison. And in one of the pitiful huts they had for shelter they found the still-warm, murdered body of the last soldier. How it happened, and why, remains a mystery to this day. (An interesting book about Clipperton, which won the French Goncourt Award an historical novel, is Andre Rossfelder's *Clipperton, le Tragique*).

The establishment of a boat shelter and an airstrip on Clipperton will also allow France to show its physical presence in the region and strengthen its claim on the surrounding 200-mile (322 km) zone which it is reported to be rich in manganese nodules and polymetallic sulphides.

Will this mean that Clipperton will become a more frequently visited DX location and henceforth take it of the much-wanted lists of so many?

Information from *Pacific Islands Monthly*, March 1986 — contributed by Eric L30042.

RUMOURS

Martti Lane OH2BH, in an exclusive letter to Bob Winn, Editor of *QRZ DX*, explains many of the problems and the high expectations his group had for 1985 regarding Albania. Martti also told of the rumours, which were very inaccurate, to the QSL cards received which were of course bogus.

Martti mentioned the fact that Enver Hoxha, Albanian leader since 1944, died. As he was a father figure in Albania it was realised that nothing positive could be expected to happen until the Albanians had sorted themselves out.

"Bahri DUJULI, had great expectations regarding his planned visit to Albania in July and August. It was decided not to duplicate any effort during that period. Instead, the idea was to support Bahri in every way so that he could continue his efforts first. The equipment already in Albania was scheduled to be used by Bahri, should his endeavours prove successful. Bahri's proposed visit, as part of a tourist group, did not assure him of a visit although he did everything in his power to obtain one. Because of many sensitive national and political issues, Bahri was working on his project alone — just the way we are working on the Finnish project.

"6-12th December was the date set for a Finnish exhibition in Tirana — one of the first such exercises allowed to be undertaken by a Western country — or any outside country. The organiser and host of this show, covering culture and the arts, was the Finnish Ambassador to Tirana, who was also heading the amateur radio project with OH2NB and OH2BH.

"An extensive package of information and material was presented personally to the Foreign Minister of Albania aimed at providing further training on the subject, with the Albanians having selected a Finnish group for further familiarisation and allowing the Finnish group to demonstrate amateur radio in action.

"A very positive attitude was clearly noticeable, but — as expected — there was no straightforward commitment.

"The world will live on and hopefully 1986 will bring along a true-blue ZA-station on the air."

Late news received stated that an OK-group hope to be operational around the 20th September, but we will have to wait and see.

RECIPROCAL AGREEMENT

It appears that France and Japan will sign a reciprocal licensing agreement in the near future, particularly when translations of their regulations are exchanged. No mean feat for its interpreter!

WHIRLWIND TRIP

The Pacific whirl by J1JTZX is over and he is now at home watching the cards roll in. He visited the following areas using the following call signs: KC6MR/KC6, C2INI, 2K2JA, J1JTZX/KH8, -AH8, -NH8, 2K1XR, 5W1FI, A352X, 302JA and T21ZX.



Rolf PY1RO, pictured climbing his 60 metre tower. Rolf is mainly active on 160 metres CW.

PACKET RADIO

A recent letter from Barry VK2AAB, shows that the packeteers are getting plenty of DX. Barry states that Brian VK2CMC, has worked the following on 14.103 MHz: JA1DSI; JA5TX; JA3AQD; YJ8RG; DU1UJ; 9M2OK; 9M2CR; 7D1AAE; N6DGG; KA6ERF; KA6NVI; WR4B; WA4RVO; X31TU; YB1BG; YB3CBF; DL4GL; 3VQW; I3FVY; Z55AAN; K4EIMM; VK2BVS; VK2AAG and VK2AAB via YJ8RG.

Barry meanwhile has worked: YJ8RG; K7TBT; I0APV; I0ZV; G3LDI; JA5TX; and JA1DSI.

Barry says that most of the activity is on 20 metres at present, however he has heard some activity on 7.093 MHz. Keep up the good work Barry.

FROM LAND'S END TO . . .

From Land's End to Anywhere, is the DXer and DXpeditioner's dream and from 23rd to 26th May, many amateurs will be listening for a hitherto unsung, unheard of place 30 miles (48 km) adrift in the Atlantic Ocean, just off the granite cliffs of Land's End, England. It is not a new country but it is certainly something unusual.

Great Ganilly is an uninhabited 20 acre (8 ha) island in the Scilly Isles group, and it from this isolated area that 15 Cornish radio enthusiasts hope to organise a special event station.

The islands are chiefly owned by HRH Prince Charles, through the Duchy of Cornwall. The Duchy and the Nature Conservancy Council were unable to allow the radio group use the larger island of Samson because of the wildlife that inhabits it, but after writing to the Duke of Edinburgh permission was granted for the use of Great Ganilly.

The Scilly Islands are made up of five inhabited islands (population 2000), and countless barren rocks and islets and has a riveria-type climate. They were a popular holiday location for former British Prime Minister, Harold Wilson.

Great Ganilly, inhabited by rabbits, seagulls and Bronze Age relics, was chosen by the group for its accessibility. One of the expeditioners, Tony Bevington says there is bound to be pandemonium as the group will be carrying radios, aerials, generators, tents, water and food across from the mainland by steamer. Tony and his wife Lella, also an amateur, estimate that over 5000 contacts will be made in 56 hours.

Special call signs for the venture will be GB4IOS and GB8IOS.

The local harbour master for the capital island of St Mary's, Colin Oakley, himself a radio enthusiast, will be acting as the party's coordinator.

Apart from anticipating plenty of radio contacts, the party will raise funds for the British Lifeboat Institution — particularly appropriate gesture in sea-faring Scilly!

It is interesting to note that during his wireless pioneering days, Marconi ventured to the Scilly islands and relayed signals back to the Cornish mainland.

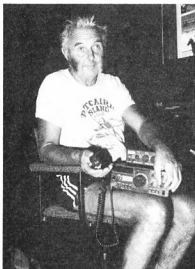
Information supplied by Clive Mumford.

BITS FROM HERE AND THERE

Beware of OY7ML who is QRV on weekends. It could be a pirate as the real owner of the call is mostly QRV on week-days after 1800 UTC. * * Carlo ISJEJO, was quite active as KC6CM earlier in the year. Please QSL to the home call. * * Irlis and Lloyd made 6 500 contacts from A2 and hoped to work from yet another country before returning home to the USA. * * Don't miss the USSR CQ 34 Contest on the 10th and 11th of this month. * * ZL7AA is quite active from Chatham Island and can be worked on the 40 metre net of Eric ZL2AAG. * * William IOWW, US Ambassador to the Holy See suggests late this month or early next month will be the time to work 1AOKM, when it should appear. * * Hans DK1RV, states that anyone with little luck could have been well on the way to the ultimate with their DXCC last year as there were 273 countries on the air. Not bad pickings for anyone starting out but a poor show for anyone with their eye on the ARRL DXCC Honour Roll. * * Henry G3GIG, well-known to VK DXers with his massive signal, has notched up 1500 band countries on 10 through to 160 metres and that's excluding the WARC bands. Congratulations on your tenacity Henry! * * Don't miss JW5OCA and JW6HAA, who will be active until the end of next month. * * Another unusual call TV6BFI, will also be active till the end of next month. * * The Norwegian Government have not issued permission for any current plans to operate Bouvet or St Peter 1 Island as of when these notes were being prepared in mid-March.

PITCAIRN

I had the pleasure recently of meeting Jim G3OKG/VR6JR/VK3AUT, to name but a few of his current call signs. Jim was also PX1OK, later to become C31BY, when he was signing out of the Andorra's, some years back.



Jim pictured with his TS120 and trusty Antenna Tuner.

Jim, on a brief visit to Melbourne, was accompanied by his charming wife Noreen and they were the guests of Ron (VK3OM) and Lynette Fisher during their stay in the Garden State.

Jim had been the guest of Tom and Betty Christian VR6TC and VR6YL, respectively and their four daughters Jacqueline, Raelene, Sherlene and Darlene, since the beginning of June last year, whilst he was assisting in reconstructing the wharf at Pitcairn.

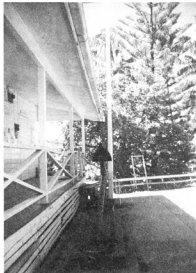
Jim left Pitcairn en-route to New Zealand, where he met Noreen and journeyed on to Melbourne.

PITCAIRN'S HISTORY

Pitcairn, an island of one of the most isolated group of islands in the world and is located at 25 degrees 4 minutes south by 130 degrees 6 minutes west. Pitcairn itself is 3.2 km long by 1.6 km wide. The island group consists of Ducie, Henderson, Oeno and Pitcairn. Pitcairn, which is the only inhabited island, had a census of 64 people at the last count. Of these, 51 are actual islanders, the others being a medico, school teacher and pastor with their respective families.

The island group was discovered in 1767 and originally named Pitcairn's Islands, after its discoverer, but in later years the s has been dropped and it and the other islands are referred to as Pitcairn Island.

In January 1790, nine mutineers of the HMS Bounty, accompanied by 12 Polynesian women and six men, left Tahiti and were not heard of again for nearly 20 years. They arrived at the uninhabited group of islands and decided to settle on Pitcairn.



One of the Bounty's Anchors.

The land on the island was divided among the mutineers and the natives were used as slaves, and as such were very poorly treated. The early years were quite violent, so badly so that all of the six Tahitian men and seven of the mutineers met violent deaths. One of the two remaining men died of respiratory trouble, leaving Alexander Smith, the sole surviving male.

In 1808, the island was visited by the Topaz, whose crew found the small community of Tahitian women and half caste children living under the pastoral care of Alexander Smith (later changing his name for some unknown reason to John Adams) who had become a devout student of the Bible and Book of Common Prayer salvaged from the Bounty before it was burnt on their arrival on the island. He was allowed to spend the rest of his life on the island with the surviving women and children.

By 1856, the population on Pitcairn had increased to such a degree that the island could not support them and the British Government evacuated the island's entire population to Norfolk



John Adam's Grave.

Island, which was stocked with sheep, cattle and horses for their benefit. Norfolk had been used as a convict settlement until 1855, where life was rather unpleasant, but that is a story on its own. (The main population of Norfolk, incidentally can be traced back to the Pitcairners who arrived at that time.)

Within 10 years most of the Pitcairners had moved back to Pitcairn where they have remained. This has formed the basis of the families today that happily live on the island.



Church.

The islanders are deeply religious. An American missionary arrived around 1886 and converted everyone to Seventh Day Adventism and hence the word of the church is law. This provides a harmonious atmosphere and no one on the island can recall a major crime.

As there is no natural harbour, ships are required to anchor off the island's shore and the islanders row out to receive mail, etc and sell the trinkets that have been made on the island.



Ships Landing Point.

The history of these islanders is enthralling reading and most libraries have or can obtain a number of books which are well worth reading including one book which traces the dialects used on both Norfolk and Pitcairn in detail.

As stated previously, Jim had gone to assist in repairing the wharf, which was in quite a state of disrepair due to the tides, even though it can only handle the Long Boats, which are vessels approximately 12 metres long, and can carry a capacity of up to five tonnes and have a shallow draught, as Bounty Bay is only about two metres deep at high tide. Jim said 'at times they unbelievably looked liked match sticks being tossed around in the shallow water'.

Jim left home on the 18th May last year aboard the 229 tonne cutter *Vibke*, with a Danish registry, hence the unusual call of G3OKQ/OZ/MM which he used for his 190 SSB contacts from the 45 metre long by nine metre beam sailing vessel whilst en route to the Pitcairns. The vessel arrived correct to schedule on the 1st of June, anchoring off Bounty Bay and unloading all the supplies into the Long Boats. This was a very slow business due to the cargo weight and the prevailing weather conditions.



School and School House.



Hostel.



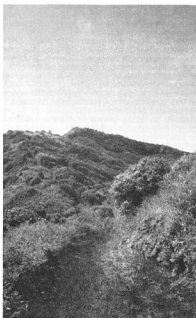
Radio Station.



St Pauls Pool.

Jim recalls, that whilst working on the island, at times waist high in water, welding mask in one hand and electrode holder in the other with about 40 volts potential and untold amperes available, it was quite uncomfortable when a wave hit you, which was quite frequent. Incidentally the tide swing is about one metre.

The weather on this friendly island is quite



Pulwala Valley.

temperate, the lowest temperature being about 12 degrees, the highest 30 and an average in the comfortable mid-20s. The island is well above sea level, the highest spot being some 338 metres ASL and the area is very undulating allowing little cultivation though the soil is very fertile.

This island boasts two dogs, many cats, one rabbit, six ducks, many chickens and one tortoise. Fishing is a way of life and it was interesting to see Jim's videos of the difficulties experienced in beaching the longboats and of the mountainous terrain with such proximity to the beach. Luckily they have a little beach buggy, 15 tri-cycles, one bulldozer and a couple of tractors.

Amateurs are not scarce on this out-of-the-way small island. Firstly one would have to mention the Marconi of Pitcairn, Andrew Young who was born in 1901 and had the call sign VR6AY, then Tom and Betty VR6TC and VR6YL, Kerry Young VR6KY, Nig Brown VR6KV, who is also the Islands Police Officer and a new licensee Irma Christian who uses the call VR6ID.

Jim did most of his operating from Tom's QTH and had nearly 12 000 SSB contacts on 20, 40 and 80 metres using his trusty TS120 from battery power and his antenna tuner. Jim on occasions used Tom's TH3 at 12 metres but generally used dipoles strung as high as possible.

Jim had a marvellous time, living with these friendly people and managed to spend some time on the radio nearly every day he was on the island. Jim enjoyed joining the nets that Percy VK3PA, and Eric ZL2AAG so efficiently run and he luckily avoided many dog piles.

All QSLs are to go to his home QTH as per the Call Book address or via the Bureau.

Photographs on Pitcairn Island (including cover) courtesy of Merida Warren.

THANKS

Since thanks are extended to the following: The Editors of weekly, bi-weekly and monthly newsletters including the ARRL NEWSLETTER, BARR, CO-OSO, DX FAMILY FOUNDATION NEWSLETTER, INSIDE DX, JAN and JAY O'BRIEN'S CQI, MANAGER LIST, KH8BZF REPORTS, LONG ISLAND DX BULLETIN, QRRZ DX, RSGB DX NEWS and THE WESTLAKES AMATEUR RADIO CLUB NEWSLETTER. Magazines including, BREAK IN, CQDX, JA CQ, JARL NEWS, KARL NEWS, PACIFIC ISLANDS MONTHLY, QST, RADCOM, VERON and WORLDWIDE. Members who have contributed include VKs 2HD, PS, AAB, EBB, 3OM, YJ, VL, SHD, G3NBO and L30042. Overseas amateurs include AH2BE, KB6CAWKH2, ON7WW, WB6GJF and ZLs 1AMM and AMK. Thanks to one and all who have made this column possible.

AR

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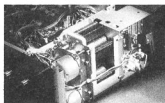


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Contests



Ian Hunt VK5QX
FEDERAL CONTEST MANAGER
Box 1234, GPO, Adelaide, SA. 5001

CONTEST CALENDAR

- MAY**
 3-4 County Hunters SSB Contest (See comments below)
 3-4 Armadillo Run SSB (See comments below)
 3-4 Florida QSO Party
 10-11 DARC Corona 10m RTTY
 10-11 USSA CQ-M Contest
 10-11 New York State QSO Party
 17-18 ARI International Contest (Rules April issue)
 17-18 Michigan QSO Party
 24-25 CQ WW WPX CW Contest (See comments April issue)
 27-28 1986 CLARA AC/DC "Mystery" Contest (Rules March issue)
- JUNE**
 21-22 1985 VK Novice Contest (Rules this issue)
 28-29 ARRL Field Day Contest
- JULY**
 12-13 IARU Radiosport
 26-27 Armadillo Run CW (See comments below)

ARMADILLO RUN

I quote directly from notes supplied to me by Frank Anzalone W1WY, who is the DX Columnist for CQ magazine and would point with some emphasis to the VK5 involvement in this event.

"SSB - 3-4 May CW - 26-27 July, 0000 UTC Saturday to 2359 UTC Sunday. (Rest period 0800 to 1200 UTC).

The Texas DX Society is again sponsoring this popular activity. This years run is in commemoration of the Texas Sesquicentennial (150th year of statehood). This promises to be the real big one as their goal is to activate all 3076 US Counties, plus a newly created Armadillo County. The new county will be recognised from 2nd March to 31st December, not only for the two weekends of the run, but also available for the CQ USA-CA awards program.

You will note that the dates and times are the same as for the County Hunters Contests. The exchange and other features are also the same. (County Hunters rules also included below - VK5QX).

There will be special Armadillo Run stations on between 1300 and 0100 UTC, Saturday and Sunday, activating their assigned counties on 20 and 40 metres.

Scoring is the same as the CHC Contests, with the following additions:

Australian counties will also count as multipliers. Armadillo County, Texas counts five times QSO points. South Australia counts 10 times QSO points. And any VK5 station counts five times QSO points. (Since 1986 is also the 150th Anniversary for South Australia, they plan to run joint activities with the Texas Armadillo Run).

There will be awards galore, more than can be covered in this edited announcement. I strongly advise interested amateurs to send a large SASE to Tom Tarkenton K5RC, 12610 Barbizon, Houston, Texas, 77069, for a copy of the Armadillo Press with all the details and a list of regional coordinators.

Logs to The Texas DX Society, 350 Magnolia Bend, New Caney, Texas, 77357, must be received within one month after the contest date. Whilst the above with regard to VK5 stations and South Australia may seem a little confusing I can only interpret it to cover the fact that a VK5 station could be operated from a state other than VK5 in a portable/mobile capacity. (VK5QX).

(A brief resume of the event was published in December AR, p 28).

COUNTY HUNTERS SSB CONTEST

From 0001 UTC Saturday to 2400 UTC Sunday, 3-4 May. (Rest period from 0800 to 1200 UTC each day). This is the 15th Annual Contest sponsored by the Mobile Amateur Radio Awards

Club, to increase activity for the County Awards program. The two four-hour rest periods are mandatory.

Emphasis is on mobile operation. Fixed stations may work other fixed stations, but only once regardless of the band. Mobile stations may be worked from each county or band change. Mobiles contacted on a county line count as one QSO but two multipliers. QSOs made on a net frequency do not count.

Exchange - Signal report, county and state, country for DX stations. (Mixed mode contacts are permitted provided one station is on SSB).

Points - Contacts with a fixed W/K station, one point (including KH6(KL7)). Contacts with US mobile, 15 points. Contacts with US mobile team, 30 points (both operators participating).

Final Score - Total QSO points, times the total number of US counties worked.

Frequencies - 3.870-3.890; 7.225-7.250; 14.250-14.285; 21.360-21.380; 28.570-28.600 MHz. Following spots considered Mobile Windows: 3.875; 7.240; 14.270 MHz \pm 5 kHz. Fixed stations must QSY after working a mobile. (Australian amateurs are reminded some of these frequencies are out of band).

Awards - Plaques to the first and second place US Mobile; top scoring fixed US/Canadian, DX station, and Mobile Team. Certificates to the top 10 mobiles and to the top scorers in each state, province and DX stations.

It is suggested that you send a large SASE to WASOTK for detailed rules and log sheets. All entries must be received by 4th June, and go to Barry Brewer WASOTK, PO Box 65, Randolph ARB, Texas, 78148. Winners will be announced at the County Hunters Convention and in the MARAC Newsletter. (Include a large SASE for copy).

So there are a couple of quite interesting and different events for you to try your hand at. I know that I always get a thrill from contacts with mobile DX stations and particularly so when I am operating mobile myself.

Speaking of being out mobile or portable provide an opening for a short comment on the John Moyle Memorial Field Day Contest, held just before the preparation of these notes. Here in VK5, the weather was really ideal for such an outing and I personally enjoyed it greatly, although rather disappointed that I could only be in the six-hour section of the contest. I found conditions to be excellent, particularly on 40 metres. On that band, I was constantly called by European and G stations. One W station attracted my attention to the higher part of the band and, having joined him there, I was told that I had the strongest signal of any VK on the band - at least 15 dB over S9, and the strongest he had heard in a long time. I cannot say that I was displeased at the information. I had gone to a lot of trouble to have my dipole for the 40 metre band up to a height of about 60 feet (18m). I do however, wonder whether that was such a good idea for the Field Day Contest as the lower angle of radiation may well have meant that my signal was skipping over the closer interstate stations. Anyway, I do hope that you enjoyed your participation in the Field Day Contest. I will also be most interested in hearing what the various weather reports will be from each of the states. Maybe this year the VK4 boys were not rained-out after all. Incidentally the good conditions resulted in me being called by a ZF station on 40, which is a country that I still need confirmed!

This month, I provide, as promised, the rules for the 1986 VK Novice Contest. I would hope to see a great deal more enthusiasm this year as the time of the year should provide much better conditions on the main Novice band of 80 metres.

The rules are virtually unchanged from last year, and unless some good reason rears its head, could probably be considered now to be fairly well established to this format.

An interesting letter from Bob VK7NBF just received, makes comment on the remarks in my column regarding lack of CW operation by Novice stations in the 1985 VK Novice Contest. His letter is certainly worth quoting.

"Thank you for inviting comment on the remarks made regarding the lack of Novice activity on CW during the above contest. I am the holder of a Novice licence, but I have passed the 10 WPM test so I cannot be regarded as one who dropped CW altogether and I still enjoy the occasional QSO with the key."

There are two main reasons why I do not participate in the CW section in contests. First is the overcrowding on the narrow band available. Second is the unfortunate practice of some operators using their 100 watts to blank out signals from novice operators using 10 watts. A contest should be an enjoyable experience, but my recent experiences have been more like the survival of the fittest in which the low power operator is thrown to the lions. Current conditions restrict the available bands to 3.5 MHz, where we novices only have the 10 kHz. What makes this more extraordinary is the fact that on SSB nearly all operators are polite and friendly and appear to be enjoying themselves.

"Some of the critics infer that we must qualify for the full call so that we are permitted to use higher power and thus claw our way into a crowded band at the expense of other less fortunate beings."

"Thank you for your regular column in AR and for the work which this must entail".

Well Bob, it is always good to see an opinion well expressed and it is in this way within the realm of amateur radio that we can benefit by useful dialogue. I would suggest that more considered comment could be forthcoming from members on such subjects and that discussion of this nature would prove of value when the multitude of items come up for consideration at the Annual Federal Conventions.

Not everybody may agree with what Bob has to say in his letter. If you do have an opinion, why not go ahead and make it known publicly. I would certainly like to hear a great deal more expressed regarding the Ross Hill VHF Memorial Contest. Surely there is a much greater body of opinion than the few letters I received with the logs submitted. Maybe however, there is really no great interest in that contest after all!

I would also like to express my own personal opinion through this column, realising that as I do so I am in a privileged position. I firmly believe that the fact has to be recognised by everybody member and non-member alike, that the WIA is accepted by the Australian Government as the official representative body of amateur radio operators in this country. This therefore means without any doubt, that the best way of dealing with any matter which affects the amateur service within this country is to have it taken up within the forums of the Wireless Institute of Australia. The organisation may have its shortcomings, and what organisation hasn't, however, it has served us well for many years and, here in Australia, we are a lot better off than our counterparts in many other countries. If it had not been for the watchfulness of those who do not have held office within the organisation throughout the years and for the way in which the affairs of the WIA are conducted, this may well have not been the case.

I would suggest that if you are a non-member reading this you might give this you might give this approach to things some serious thought. What better way to work for change for the better than by bringing it within the WIA where the decision there has to be gained by sitting on the outside complaining about the way the WIA does things when, as a member, you could be making a more useful contribution to our hobby and helping to put right those aspects where you think things are wrong.

Just to hearken back to Bob's letter again, I would certainly make a plea for full call operators to consider the advisability of reducing their output power in crowded band segments. Whether you are operating in the novice segment or not should make no difference to the fact that you need only run as much power as is necessary to make your contact. At the same time, I would also appeal to those holders of a novice call to realise that the novice sub-bands are just that, a sub-band within an amateur band, and that they are not for exclusive novice use. It would appear from my observations that quite a number do not understand this fact. The full call operator does have the use of all portions of the allocated amateur bands.

Finally, on this particular note, I might point out to all that we only occupy the spectrum made available to us as a privilege and not a right. It is certainly incumbent upon all licence holders to treat this privilege with respect and carry out our operations in a manner which will not jeopardise our existence as amateur radio operators.

By the time you read this material, the 1986 Federal Convention will have passed. I would like to think that in the contest area, realising also that amateur radio is not just contesting alone, I will have been able to make a further contribution towards improving this facet of our hobby. Yet, I do have a few ideas left to expound upon and these will have been covered in my report to the Convention.

Meantime, please also continue to let me know about your ideas on contests and their associated aspects and problems. Again, I would point out that I cannot undertake to answer every letter, however, I would like to think that I can cover most aspects of your queries in the treatise which appears in this magazine.

So, enough of the soap-box for now. I trust that you will enjoy the Novice Contest and that I will have the opportunity of exchanging serial numbers with you. So for yet another month I will wish you all the best in your activities.

73 de Ian VK5QX.

VK NOVICE CONTEST 1986 — Rules

Contest Period — From 0800 UTC, 21st June 1986 to 0759 UTC, 22nd June 1986.

Objects of the Contest — To encourage contest operation of amateur radio stations in Australia, New Zealand and Papua New Guinea, with special emphasis on contacts with novice and radio club stations.

Station Eligibility — Only stations in VK, ZL and P2 call areas may enter. No stations outside these areas are permitted to be worked or entered in a log for the purposes of this contest. Except for radio clubs, no multi-operator operating is allowed. Stations in the same call area may contact each other as well as contacting stations in other call areas.

Contest Bands — All operation must be confined to within the novice frequency sub-band allocations in the 10, 15 and 80 metre bands. No cross-band operation is permitted.

Modes of Operation — Only Phone or CW may be used. In the CW mode, operation must not exceed a speed of ten words per minute. This is to encourage the use of CW by all operators and to allow improvement in this mode by those operators who do not usually practice same.

Contest Sections — a) Phone — Novice/Full Call, b) CW — Novice/Full Call, c) Listeners.

Scoring — Transmitting Entrants: for contacts with a Novice Station — five points. For contacts with a Club Station — 10 points. For contacts with a Full Call station — two points.

Listener Entrants: for Novice/Novice Contact — five points, Novice/Full Call Contacts — two points, Full Call/Full Call Contacts — two points. Any contact with a Club Station — 10 points.

Call Procedure — For phone operation call CO Novice Contest and for CW operation call CO N. Contacts — Any station may be contacted only once per mode per band.

Number Exchange — On phone, stations must exchange a serial number comprising an RS report followed by three figures. The figures must commence with 001 and increase sequentially by one for each contact up to 999. If 999 is reached

the serial number is to revert back to 001 and the sequence recommenced. For CW stations must exchange a serial number comprising RST report followed by three figures on the same basis as described above for a phone contact serial number. Radio club stations must add the letter C following the serial number.

Log Entries — Each log sheet should be laid out such as to provide columns in the order given as follows: Date/UTC Time, Band, Mode, Station Contacted, Serial Number Sent, Serial Number Received, Claimed Score. Total Claimed Score should be shown at the bottom of the Claimed Score column for each page. Each log sheet must also be endorsed at the top VK Novice Contest 1986.

Front Sheet — A front sheet must be attached to each log entered and must carry the following information: Name of Operator, Address, Call Sign, Section Entered, Claimed Score.

Declaration — The Front Sheet must also carry a declaration which states that I hereby certify that I have operated within the rules and spirit of the contest. Each entry must carry the signature of the licensed operator of the station and be dated accordingly. In the case of a club station, the entry must be signed by a responsible officer of the club's committee or a licensed operator delegated by the committee to do so. In the case of multi-operator stations, the call signs of participating operators must also appear on the front sheet.

Regulations — All stations participating in the contest must be operated within the terms of the station licence and applicable regulations.

Submission of Entries — Logs are to be forwarded to the Federal Contest Manager, c/- Box 1234, GPO, Adelaide, SA 5001. Envelopes are to be endorsed Novice Contest on the front outside. Entries must be posted so as to reach the box number no later than 28th July 1986. Any entries received later than this date may be used as check logs only.

Certificates — Certificates will be awarded to the top scoring entries in each section at the discretion of the Federal Contest Manager and to any other entrant where meritorious operation has been carried out in the opinion of the Contest Manager.

Trophy — The Keith Howard VK2AKX Trophy will be awarded to the novice entrant with the highest aggregate score from both the Phone and CW Sections of the Contest. This trophy is a perpetual trophy and will be held by the winner until such time as it is awarded to a winner of a subsequent Novice Contest. Should two or more aggregate scores be equal a decision will be based on a count back as to the greater number of novice stations listed in each log entry. Should such a count also be equal, the log containing the greatest number of CW contacts will be preferred. In the event of a further tie, under these rules the log will be placed before a committee which will exercise a vote as to the nearest and most meritorious entry.

Disqualification — The Contest Disqualification Criteria, as published in each August issue of Amateur Radio shall apply. Any station observed during the Contest as constantly departing from the generally accepted code of operating ethics, may also be disqualified.

AR

AMATEUR RADIO DIRECTION FINDING CHAMPIONSHIPS

The Savec Radio-Amatera Jugoslavije (Amateur Radio Union of Yugoslavia), an IARU member society invites amateurs to attend the Third World Jubilee ARDF Championships to be held in Sarajevo, Bosnia and Herzegovina, Yugoslavia from 3rd to 7th September 1986.

The championships have been declared as jubilee in order to mark the 25th anniversary of the first international Amateur Radio Direction Finding Competition held in 1961.

It is noted that the host society is also celebrating its 40th anniversary in 1986.

Additional information may be obtained from Savec Radio-Amatera Jugoslavije (SRJ), PO Box 48, 11001 Beograd, Yugoslavia.

PACKET DEMONSTRATION

During January, Sam VK2BVS combined a public display with the annual Sydney Triathlon. This was the first public demonstration of Sam's Packet Radio Station. The station operated from 7pm until 2pm the next day and although a tent was provided by the organisers, it was not used so that the public would have more access to the station.

The entire packet station was powered by a 1.2kW petrol generator which was loaned by the SES. No noise or spike problems were encountered with the generator. When not in use, the television monitor displayed 15 second public relations text about amateur radio.

As well as amateur packet radio and voice links, the SES provided their services during the event.



Contributed by Sam Voron VK2BVS



Equipment Review

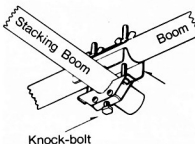
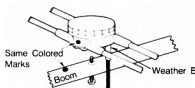
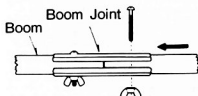
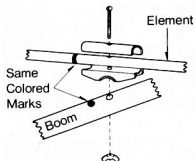
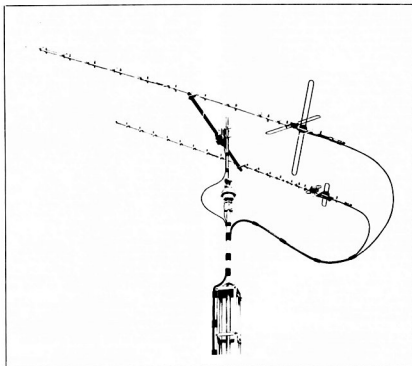
Graham Ratcliff VK5AGR
9 Homer Road, Clarence Park, SA. 5034

MASPRO Antenna's WHS32

The WHS32 is a complete amateur satellite antenna system in a single package. It arrives in one carton, 2200 mm long, 170 mm wide and 150 mm deep, and weighs less than nine kilograms. The system contains a two metre circularly polarised 24 element crossed Yagi on a 4.11 metre boom, a 70 cm circularly polarised 40 element crossed Yagi on a 3.68 metre boom, plus a 1.7 metre by 40 mm diameter fibreglass stacking boom.

Both antennas are of sturdy all-metal (aluminium) construction (25 mm diameter boom and 10 mm diameter elements) with the exception of the weather-resistant plastic box containing the balun and switches mounted at the centre of the four plastic coated folded dipole driven elements.

Each antenna is supplied with the boom split into two parts. Most of the directors are already attached and all that is required is to loosen the stainless steel wing-nuts on each element and rotate it through 90 degrees and retighten. Then the remaining four directors, two reflectors, and two driven elements need to be added (NOTE: all elements are clearly colour-coded for correct positioning on the boom). Another two bolts with wing-nuts join the two sections of the boom together and the antennas are ready for mounting on the fibreglass stacking boom using the clamps provided on the boom of each antenna.



Sonique Pty Ltd, 112 James Street, Templestowe, Vic. 3106. Phone (03) 846 3032 or ZZV Antenna Farm, PO Box 160, Cardiff, NSW. 2285. Phone (049) 54 8688.

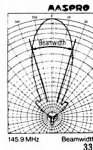
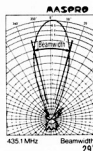
The final stage of assembly is to attach the coaxial cable to the N-type connector on the phasing harness for each antenna and seal the connectors with the self-bonding waterproof tape that is provided and to connect the 12 volt cable to the two switcher boxes. The whole assembly process should take less than half-an-hour from start to finish.

The end result is a comparatively compact and tidy Mode B or Mode J satellite antenna system with switchable left and right hand circular polarisation with excellent performance characteristics. The gain figures are conservatively quoted as 10-12 dB on two metres and 12.5-13.4 dB on 70 cm, with respective beamwidths of 33-35 degrees and 27-29 degrees.

When put to the test at this QTH on OSCAR-10, Mode B, both antennas noticeably out-performed my existing antenna system which comprises a 2M-14C on two metres and a 435-18C on 70 cm, with quoted gain figures of 11 dBc and 12 dBc respectively.

For the amateur satellite enthusiast the WHS32 offers the ultimate in Japanese ingenuity in the adaptation of a well-proven satellite antenna design at a competitive price.

Further information may be obtained from





Awards

Ken Hall VK5AKH
FEDERAL AWARDS MANAGER
St George's Rectory, Alberton, SA. 5014

DXCC UPDATES

This list covers the period since the last published in Amateur Radio, September 1984.

It does not include those with scores of 270 and above, whose updated scores were published last month. The scores are of countries in the current list. Countries which were current when worked, but now deleted, are shown in brackets.

Call Sign	Date	Phone	CW	RTTY	Open
VK1ZS	11. 3.85	27	147(30)		
VK1ZL	29. 7.85	181			
VK2AAC	15. 8.85	184(4)		175(4)	
VK2AVZ	28. 8.84	252(4)			
VK2BCH	13. 3.85	204(1)			
VK2BOS	22. 2.86	180			
VK2DPN	12. 1.85	244			
VK2DVU	6. 12.85	150			
VK2PU	10. 7.85	163			
VK2PS	20. 12.85		159(1)		
VK3AKK	12. 1.85		199(1)		
VK3JYL	27. 8.84	254(3)		254(3)	
VK3JYL	20. 2.85	204(2)			
VK3JB	29. 1.85	255(18)			
VK3JO	14. 8.84	193(4)		204(18)	
VK4IAX	19. 4.85	165	131	189	
VK4IX	18. 1.86		128(1)		
VK4OH	27. 2.85	196			
VK4GK	29. 8.85		118	133	
VK5ATN	20. 6.84	112			
VK5EE	19. 2.85	254			
VK5GZ	30. 7.85	102	116	140	
VK5LC	5. 3.86	264(11)			
VK5PS	19. 2.85	200	188(5)		
VK5WO	4. 12.85				
VK6DU	11. 7.85	186			
VK6RU	1. 6.85		269(42)		
VK6YC	20. 6.84	181			
VK7BF	11. 7.85		190(6)		

AWARDS ISSUED RECENTLY

WORKED ALL STATES (VHF) all 144 MHz

163	Michael Trickett VK3ASQ
164	Michael Goode VK3JBL
165	Trevor Ivin VK5NC

WORKED ALL VK CALL AREAS (VHF) 52 MHz

27	Lionel Curling VK3NM
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WORKED ALL VK CALL AREAS (HF)

1421	Flarano M02MOV
1422	Pustkino Club Station UK3DAH
1423	Vladimir Kozlov UA9OO
1424	G N Sozontov UA9HBA
1425	Miri UCIWAC
1426	A M Belevodsky UA1OAC
1427	A Vernigorov UA8AAQ
1428	Yuri Sanichev UA8EAD
1429	V W Pushkar UA6HEZ
1430	D N Rapsky UA1WAE
1431	Kiev Politekhn ARC UK5UDX
1432	Nick Goffey UBSUAT
1433	V F Miroshnichenko UA0LZC
1434	Boris Z Rodin UA3ADY
1435	Valery Sopov UA0ZDE
1436	Tom V Stepanov UA6APP
1437	Miri UK2ABZ
1438	Arnel J Voloshin UA4ACD
1439	N J Cox PA2NJAC
1440	Eric Gulland YC8VCE
1441	Joe Schermbi JH1G
1442	Junichi Tanaka JH1MO
1443	Fujio Satoh JH7DUM
1444	J H Over PA2JHO
1445	Lugia Rafilaevo IK0KNQ
1446	Yoshi Kobayashi JA7JKO
1447	Seigo Kobayashi JTB7EX

HEARD ALL VK CALL AREAS

101	Fred Freemantle I40855
102	J Bearsby L60935
103	Frank Lindsay L30266
104	Kenichi Kobayashi JA1 9597
105	
106	Pavlova Posad Club Station UK3 142
107	Vladimir G Salurou UA4 152 361
108	Yuri Gushchev U85 059 11
109	Alex E Chogolov UKA1 169 656

DXCC NEW MEMBERS

The following new DXCC members both have a score of 101.

341
342

Robert F Hancock VK5AFZ
Peter F Jeffery VK2AFJ

FRANKSTON & MORNINGTON PENINSULA ARC 10TH ANNIVERSARY AWARD

1986 marks the 10th Anniversary of the Frankston and Mornington Peninsula Amateur Radio Club and to commemorate the occasion, a special award is being offered to all licenced amateurs.

To qualify for the Award, 10 FAMPARC members should be worked during the 12 month period between 27th February 1986 and 27th February 1987. Alternatively, the Club Station VK3BHUP should be worked on 17th or 18th May 1986 for a single qualifying contact.

Contacts may be made after the Club net which begins at 1000 UTC on Wednesday evenings, 3570 MHz \pm GRM. Watch for the Club Station, VK3BHUP.

The cost of the Award is \$A3 or equivalent and should be sent, together with log extracts to: The Awards Manager, PO Box 38, Frankston, Vic. 3169.

For a list of Club Members send a SASE to the above address.

BARTG AWARDS

Quarter Century Award

The Quarter Century Award is issued by the British Amateur Radio Teleprinter Group (BARTG) on the submission of satisfactory proof of two-way RTTY communication with 25 different countries. The Award is also available to SWLs on a heard basis.

Measuring 25.5 x 33 cm and printed in Red, Green and Black, the Certificate makes an attractive addition to the wall of any amateur radio shack. Endorsement stickers are available for each additional 25 countries up to a total of 200.

Application for the Award may be made by any of the following methods.

Submission of QSL cards for the countries being claimed. The cards must be returned after checking. Alternatively, submission of photostats or photos of these QSL cards is acceptable (and preferred). Such copies should clearly show both call signs and should establish beyond doubt that the contact was made by two-way RTTY.

Claims will also be accepted based on a check list containing call signs of stations worked, date, time of contact and band used. This list (and the QSL cards) are to be scrutinised by two officers of a recognised radio club or a national radio society. The signed check list and any fees are all that is required under this method.

Claims can also be accepted based on a contest log submitted for any RTTY contest sponsored by the BARTG. The claim should be made at the same time as the contest log is submitted.

NOTE: For the purpose of establishing Country Status, the ARRL DX Countries List is the standard reference in order to maintain compatibility with other groups with which BARTG may have reciprocal arrangements.

The cost of the Award is US\$3 or 15 recent IRCs. Cost of extra stickers is three recent IRCs, plus five IRCs if QSL cards are to be returned.

Inquiries and claims for this Award should be directed to: Ted Double G8CDW, 89 Linden Gardens, Enfield, Middlesex, England, EN1 4DX.

VHF/UHF Century Award

In order to promote interest in RTTY on the VHF/UHF bands, the BARTG offer a range of operating awards, and these are available on the submission of satisfactory proof of having worked/heard the necessary number of different stations using RTTY as the mode of communication.

PLEASE NOTE: Extracts from station logs or samples of hard copy are not acceptable.

The Awards are available separately for three different bands, and the minimum number of contacts on each band are as follows.

144 MHz band ... 100 different stations worked or heard.

432 MHz band ... 50 different stations worked or heard.

1296 MHz band ... 10 different stations worked or heard.

Additional stickers are available for each additional 25 stations worked up to a total of 200. On the 1296 band endorsements will go up in steps of 10.

Application for the Award may be made by any of the following methods.

Submission of a check list of QSL cards held, listing, call sign, date and time of contact and report received. The Awards Manager will make a random selection from this list and will ask to see those cards which will be returned with the Award.

Claims will also be accepted based on a check list as above, but which has been witnessed (together with the QSL cards) and signed correct by two officers of a recognised radio club or national radio society.

Claims can also be accepted based on a contest log submitted for any VHF/UHF RTTY Contest sponsored by the BARTG. The claim for the Award should be made at the same time as the contest log is submitted.

Cost of the Award will depend on postal rates in force at the time, but a quotation is available on request.

Claims should be posted to Ted Double G8CDW, as above.

This information has been kindly supplied by Jim Swan VK3BDB.



THE 10TH ASIAN GAMES AWARD

This Award, sponsored by the Korean Amateur Radio League Inc (KARL), is to commemorate the 10th Asian Games which will be held in Seoul from 20th September 1986 to 5th October 1986. The following special awards program will be available to all amateurs and SWLs world-wide.

The following classes of awards are available to all amateurs and SWLs who receive QSL cards during the period 1st January 1986 to 5th October 1986, complying with the rules specified.

Class HL is issued to those stations who made contact/heard 10 HL stations including at least one HL (Seoul) station.

Class DX is issued to those stations who made contact/heard 10 countries participating in the Asian Games, including one HL station. In this case, the number of contacts made/heard with from one's own country will not be counted.

The special station, HL86AG is planned to be operational during the period of the Games, and QSL cards received from this station will count as equivalent to five HL stations, or five participating stations, whichever is applicable.

To apply for the Awards send GCR and W 2 000 or US\$4 or 10 IRCs per Award.

Applications must be received prior to 20th September 1987. KARL will be commencing issuing Awards from 20th September 1986.

Extra prizes, such as commemorative stamps or Asian Games Mascots will be issued to the Award winners.

The design of the Award will be based on the official poster of the 10th Asian Games.

For reference, the prefixes of call signs of the 36 member countries of the Games are as follows:
A4: A5; A6; A7; A8; AP; B; BY; DU; EP; HM; HS; HZ; JA; JT; JY; OD; S2; VS; VS6; VV; XV; XW; XZ; YA; YB; YJ; YK; 4S; 4W; 70; 80; 9K; 9M; 9N; 9V; HL.

Applications should be forwarded to: Korean Amateur Radio League, GPO Box 162, Seoul 100, Korea.

AR

OSCAR-10 APOGEES M A Y 1986

DAY #	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES LAT DEG	LON DEG	I-----BEAM HEADINGS-----I					
					SYDNEY		ADELAIDE		PERTH	
					AZ DEG	EL DEG	AZ DEG	EL DEG	AZ DEG	EL DEG
8th May										
120 2194	2313:19	-25	196	55	73	73	62	93	41	
1st May										
121 2196	2232:22	-25	187	71	65	82	53	98	32	
2nd May										
122 2198	2151:26	-25	177	88	56	88	44	102	24	
3rd May										
123 2200	2118:29	-25	168	87	47	93	36	106	15	
4th May										
124 2201	0958:01	-25	343	124	201	0958:01	-25	343	124	201
124 2202	2029:32	-25	158	92	39	96	27	118	7	
5th May										
125 2203	0809:04	-25	334	125	2204	1948:35	-25	149	97	30
125 2204	1948:35	-25	149	97	30	102	19	114	-8	
6th May										
126 2205	0728:07	-25	324	126	2206	1987:39	-25	148	101	22
126 2206	1987:39	-25	148	101	22	107	12			
7th May										
127 2207	0647:11	-25	315	127	2208	1026:42	-25	138	106	14
127 2208	1026:42	-25	138	106	14	111	4	257	20	
8th May										
128 2209	0606:13	-25	305	128	2210	1745:46	-25	121	110	6
128 2210	1745:46	-25	121	110	6	252	18	261	29	
9th May										
129 2211	0525:17	-25	296	129	2212	1704:48	-25	111	115	-1
129 2212	1704:48	-25	111	115	-1					
10th May										
130 2213	0444:20	-25	287	130	2215	0403:23	-25	277	259	23
130 2215	0403:23	-25	277	259	23	266	34	276	55	
11th May										
131 2216	0322:26	-25	268	131	2217	0322:26	-25	268	264	31
131 2217	0322:26	-25	268	264	31	271	42	284	64	
13th May										
132 2219	0241:30	-25	258	132	2221	0200:33	-25	249	274	48
132 2221	0200:33	-25	249	274	48	286	60	329	88	
14th May										
133 2223	0119:36	-24	248	133	2225	0119:36	-24	248	281	57
133 2225	0119:36	-24	248	281	57	298	68	30	88	
15th May										
134 2226	0038:39	-24	238	134	2227	2357:43	-24	221	309	73
134 2227	2357:43	-24	221	309	73	4	78	76	64	
16th May										
135 2229	2316:45	-24	211	135	2231	2235:49	-24	202	34	77
135 2231	2235:49	-24	202	34	77	64	67	89	46	
17th May										
136 2233	2154:52	-24	193	136	2235	2113:56	-24	183	73	61
136 2235	2113:56	-24	183	73	61	83	50	96	29	
18th May										
137 2237	2032:58	-24	174	137	2239	1952:02	-24	164	88	44
137 2239	1952:02	-24	164	88	44	94	32	106	12	
19th May										
138 2241	0731:34	-24	348	138	2243	1911:05	-24	155	93	35
138 2243	1911:05	-24	155	93	35	99	24	118	4	
20th May										
139 2245	0650:38	-24	338	139	2247	1838:09	-24	145	98	27
139 2247	1838:09	-24	145	98	27	103	16			
21st May										
140 2249	0609:40	-24	321	140	2251	1749:11	-24	136	102	19
140 2251	1749:11	-24	136	102	19	108	8	255	15	
22nd May										
141 2253	0528:44	-24	311	141	2255	1708:15	-24	127	106	11
141 2255	1708:15	-24	127	106	11	112	1	259	23	
23rd May										
142 2257	0447:47	-24	302	142	2259	1627:18	-24	117	111	3
142 2259	1627:18	-24	117	111	3			12	264	31
24th May										
143 2261	0406:50	-24	293	143	2263					
143 2263		-24	293	253	9	259	20	268	40	

NATIONAL CO-ORDINATOR

Graham Ratcliff VK5AGR

INFORMATION NETS

AMSAT AUSTRALIA

Control: VK5AGR

Amateur Check-In: 0945 UTC Sunday

Bulletin Commences: 1000 UTC

Winter: 3.685MHz — Summer: 7.064MHz

AMSAT PACIFIC

Control: JA1ANG

1100 UTC Sunday

14.305MHz

AMSAT SW PACIFIC

2200 UTC Saturday

21.280/26.878MHz

Participating stations and listeners are able to obtain basic orbital data, including Keplerian elements from the AMSAT Australia Net. This information is also included in some WIA Divisional Broadcasts.

Unfortunately, due to unforeseen circumstances, AMSAT notes did not arrive in time for publication this month. Therefore there will be a double issue next month.

NOTES OF SATELLITE ACTIVITY

1 STS-61C was launched from Kennedy Space Centre utilising Shuttle Vehicle Columbia. Orbital elements were apogee 350 km, perigee 327 km, inclination 28.5° and period 91.3 minutes. On board were R L Gibson, C F Bolden, F R Chang-Diaz, G D Nelson, S A Hawley, R J Center and C W Nelson.

The payload included Satcom KU-1/PAM-D2, Material Science Lab-2 (MSL-2), Hitchhiker G-1 (HHG-1), GAS Bridge Assembly (includes 12 GAS cans), Getaway Special (G-470), Infrared Imaging Experiment (IR-1E), Initial Blood Storage Experiment (IBSE), Comet Halley Active Monitoring Program (CHAMP) and Shuttle Student Involvement Program (SSIP).

2 Satcom KU-1 had elements apogee 35488 km, perigee 348 km, inclination 27.0° and period 628.4 minutes.

RETURNS

During the period 39 objects decayed, including the following satellites:

1982-115A	Cosmos 1423	18 Jan
1985-120A	Cosmos 1713	22 Jan
1986-001A	Cosmos 1715	22 Jan
1986-003A	STS-61C	18 Jan



29th May										
149 2252	0325:53	-24	283	257	17	264	28	273	49	
30th May										
150 2254	0244:57	-24	274	262	25	269	36	288	58	
31st May										
151 2256	0204:00	-24	264	267	34	275	45	298	67	



QSP

FIRST COMPUTER

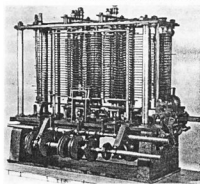
Charles Babbage is credited with building the first computer. When? In 1833, over 150 years ago.

A university, he avoided mathematics classes, preferring to row a boat on a nearby lake — and think. Yet, in spite of this truancy, his academic achievements were brilliant. In 1812, at the age of 21, he devised the first wholly automatic calculating machine. Among his other firsts was disc-style lighting. Subsequently, he was made a Member of the Royal Historical Society.

After 15 years of cogitating on how to invent a machine with the ability to produce the answers to complex mathematical problems quickly, Babbage came up with a bulky mechanical contraption of cogs, gears, wheels, etc called the *analytic engine*. The general opinion of the day was that it almost worked — almost but not quite; however, it was the basis of the first computer.

A progression of this mechanical computer was the development of the punch card system — a method of instant recall of information from files and other tabulations. Pre-WWII, OOTers may remember it. It is recorded that one of the earliest programmers was Lord Byron's daughter Augusta, who compiled mathematical programs for Babbage's projected *analytic engine*.

Contributed by Alan Shawsmith VK4SS



Charles Babbage, who in 1812 at the age of 21 devised the first wholly automatic calculating machine, proposed a much more ambitious machine in 1833 — the "analytic engine". This was the basis of the modern computer.

FIRST ELECTRONIC COMPUTER

Soon after the appearance of the vacuum tube, an attempt was made in the late 1920s to create the first electronic computer capable of accepting simple instructions. The rack and panel monster — weighing a ton — almost filled a large room and contained 10 000 bulky tubes. It was cooled by fans placed in every possible space; even then it overheated. An adjoining room housed the power supplies and a team of several maintenance men and operators was needed to keep it functioning.

Today, thanks to technological progress, the solid state miniaturisation, multi-bit chips, etc, a computer of infinitely greater capacity can be carried easily in a coat pocket.

Contributed by Alan Shawsmith VK4SS

OSCAR-10 APOGEES JUNE 1986

DAY	ORBIT #	APOGEE U.T.C HHMM:SS	SATELLITE CO-ORDINATES		I-----BEAM HEADINGS-----I				PERTH	
			LAT DEG	LONG DEG	SYDNEY AZ DEG	EL DEG	ADELAIDE AZ DEG	EL DEG	AZ DEG	EL DEG
1st June										
152 2258	0123:03	-24	255	272	42	282	54	389	75	
2nd June										
153 2260	0842:06	-24	246	278	51	292	62	351	88	
3rd June										
154 2262	0001:10	-24	236	286	60	307	70	42	77	
154 2264	2320:12	-23	227	299	68	336	76	65	69	
4th June										
155 2266	2239:16	-23	217	322	75	19	76	77	61	
5th June										
156 2268	2158:19	-23	208	4	78	58	71	84	51	
6th June										
157 2270	2117:23	-23	199	43	74	66	63	98	43	
7th June										
158 2272	2036:25	-23	189	63	66	76	55	94	34	
8th June										
159 2274	1955:29	-23	180	75	58	84	46	99	25	
9th June										
160 2276	1914:32	-23	170	83	49	98	37	103	17	
10th June										
161 2278	1833:36	-23	161	88	40	95	29	107	9	
11th June										
162 2279	0613:07	-23	336					249	2	
162 2280	1752:38	-23	152	94	32	99	21	111	1	
12th June										
163 2281	0532:10	-23	327							
163 2282	1711:42	-23	142	98	23	104	13	254	9	
13th June										
164 2283	0451:14	-23	317			248	-1	258	17	
164 2284	1630:45	-23	133	103	15	109	5			
14th June										
165 2285	0410:16	-23	308			253	7	262	25	
165 2286	1549:49	-23	123	107	7	113	-2			

SATELLITE ACTIVITY FOR PERIOD 8 TO 28 JANUARY 1986.

1. LAUNCHES.

The following launching announcements have been received:-

1986-001A	Cosmos 1715	Jan 8	USSR
002A	Cosmos 1716	Jan 9	USSR
002B	Cosmos 1717	Jan 9	USSR
002C	Cosmos 1718	Jan 9	USSR
002D	Cosmos 1719	Jan 9	USSR
002E	Cosmos 1720	Jan 9	USSR
002F	Cosmos 1721	Jan 9	USSR
002G	Cosmos 1722	Jan 9	USSR
002H	Cosmos 1723	Jan 9	USSR
003A	STS-61C	Jan 12	USA
003B	Satcom KU-1	Jan 12	USA
004A	Cosmos 1724	Jan 15	USSR
005A	Cosmos 1725	Jan 17	USSR
006A	Cosmos 1726	Jan 17	USSR
007A	Raduga 18	Jan 17	USSR
008A	Cosmos 1727	Jan 23	USSR
009A	Cosmos 1728	Jan 28	USSR

Coming next month —

Equipment Review of

KDK FM-240
Two-metre
FM



Australian Ladies Amateur Radio Association

Joy Collis VK2EBX
PUBLICITY OFFICER, ALARA
Box 22, Yeoval, NSW 2868

MRS FLORENCE VIOLET MCKENZIE OBE

Who was Mrs McKenzie?

This question is often asked by new members to our ranks when they see her name perpetuated, particularly with regard to the Mrs Florence McKenzie CW Trophy awarded annually to the Australian YL operator with the highest CW score in the ALARA Contest.

This beautiful trophy, donated by the Townsville Amateur Radio Club, is a fitting memorial to a lady who contributed so much.

Mrs McKenzie (nee Wallace), had many firsts to her credit, among them the first Australian qualified woman electrical engineer; first licenced YL amateur radio operator with the call sign 2GA, later VK2FV; first woman member of the WIA.

Her main claim to fame, however, came during World War II, when she was responsible for training thousands of service men and women in telegraphy and communication skills. She also played a major role in the formation of the Women's Emergency Signalling Corps.

For her services, she was awarded the Order of the British Empire (OBE) after the war.

The following remembrances of Vi Wallace (Mrs McKenzie), were received from a VK2 OM, and give some interesting recollections of a truly remarkable lady, who was an inspiration to us all.

VALE VI WALLACE

Many amateurs fondly remember Mrs McKenzie, with memories going back to World War II. Some knew her because she conducted Morse Schools and some remember her radio store, in a little arcade. Seeing her in a nursing home a few months before her death caused a lump to rise in my throat, for I had not seen her since the war. At that time, as a budding blue orchid, I learned CW at her wartime school, but my memory goes back further. My own grandfather was a builder from Jersey, and Vi Wallace, the licenced electrician, was a friend of the family. In particular, she was a friend of Aunt Caroline (who recently passed away at the age of 93). Both belonged to that elite class known as Garvie's Girls of Sydney Girls' High, then situated in Elizabeth Street, opposite Hyde Park.

As Australia's first licenced female electrician, Vi clambered over and under roofs to install electrical wiring. Granddad did all his trades in Jersey and abominated the new fangled electricity — he was brought up on gaslight. Those early days were the days of two-pin plugs. Earthing was almost unknown.

My first recollection of Vi was through the eyes of a six-year-old, way back in about 1924.

I cannot remember precisely. Those were exciting years of radio, when my own father, although not an amateur, made home-brew receivers. I assisted by holding down wire so that he could wind honeycomb inductances and large tuning coils surmounted by crystal and catwhisker.

Probably because of his fondness for oysters, he constructed batteries (with my assistance) out of oyster bottles, cutting glass dividers, moulding plates, applying lead peroxide and adding the acid. After that, the battery was connected to an eliminator (Trickle charger?) and we were in business.

I remember visiting Vi's shop with him in the arcade on occasions when she explained a circuit in layman's terms. Very little theory was discussed beyond where to solder the wires.

In spite of many visits to the shop, Vi was unable to assist in eliminating the unfortunate squeals from afar when someone was tuning in his regenerative receiver. Some listeners derived malicious satisfaction in jumping up and furiously twisting their own tuning knob back and forth.

We often remember people from that last photograph — that last meeting. But age is not kind and most wish to be remembered as bright, energetic — eternal youth.



The accompanying photographs are from my photo junk-box. One was inscribed *With love from Violet Wallace 4th September 1942*. There is no record of the date of the second, which was taken on a very important day of her life. For my part, I shall always remember her as Vi Wallace.

NEW MEMBER

We would like to extend a welcome to Jan VK2CJN, whose joining date was 8th March. Jan has recently upgraded to full amateur status. Congratulations Jan!

Congratulations also to Bron VK3DYF, ex-VK3NTD. I am sure she will make good use of the new call sign.

SILENT KEY

On a sad note, we were all saddened to hear that Hisako JIJIOI, has become a Silent Key. Hisako was an ALARA member, sponsored by Wendy VK4BSQ, and passed away suddenly on 5th February. Our condolences to her husband Sadao, daughter Hiroko and son Kentaro.

Thanks to Bill VK2NXT, for this information.
That is all for this month. See you next time — 7/3/3 Joy.

AR

Education Notes



Brenda Edmonds VK3KT
FEDERAL EDUCATION OFFICER

56 Baden Powell Drive, Frankston, Vic. 3199

To start with, I would like to thank those who have responded to the requests for opinions about examination matters, published in February AR. A pleasing number of letters was received, and other opinions were delivered personally or on-air. More comments in response to this article will, of course, be acceptable.

To summarise so far:

Question 1 — about the relative standards of NAACP and AACP theory examinations.

Only a few letters were received from candidates who attempted both levels on the same day, but these generally were satisfied with the standards, and the difference in level between the two.

I do not yet have the results of DOC's investigations, but have heard of only one case where a candidate passed NAACP and failed NAACP.

Question 2 — opinions about the term Novice.

Only a few respondents felt that the term Novice is derogatory. Many commented that it is an accurate description of most operators for their early days on-air, but some were hesitant in applying the term to older, more experienced operators when they themselves were new comers. Several suggested the use of Class 1, Class 2, etc as an alternative. One correspondent took more exception to Full Licence.

Question 3 — ideas about a single paper with different pass levels.

This question caused most comment, as it has on most occasions when it has been raised. There were nearly as many suggestions about how to handle it as comments on the idea, but the general opinion was in favour, because of the recent increase in examination fees.

This suggestion has been around for some years, but so far no simple and efficient mechanism has been proposed. The difficulty is again with the standards and balance of levels.

By the time you read this, our Study Guide for the Novice Course should be available, or very nearly so. I will be interested to receive comments at any time, but especially from those who use it as the basis for a class or course. Please take the time to jot down any ideas that arise on each section, and send them to me, so that we can reassess it at the end of a year of use.

Best wishes to all those sitting for any examinations this month.

73 — Brenda VK3KT.

AR



Radio Amateur Old Timers Club



REPORT OF RAOTC DINNER

The Radio Old Timers Club held its dinner and Annual General Meeting at the City and Overseas Club, on 6th March. It was a very hot day for Melbourne, over 40 deg C or 100 deg F.

Members decided, despite the air-conditioning, to remove coats and jackets and the dinner was under-way.

Max Hull VK3ZS, was Master of Ceremonies to the 41 members present. Apologies were received from Roy Perry VK3OU; Murray Clyne VK3HZ; Ivan Hodder VK3RH; John Fullager VK3AVY; Peter Thornley VK3DSU; Len Grey VK2AKO; Lloyd Chappell VK7LC; Eddy Burne VK7GB; Charles Nelson VK3WC; Ron Hingginbotham VK3RN and Arch Woolnough VK3BW.

Members were very pleased to welcome Not VK3BW, to the dinner. He is a RAOTC member, but spends most of his time in Holland, where he is Treasurer of the Dutch Old Timer's Club. His call sign in Holland is PA0NOL and he hopes that when he returns to Europe he will be able to contact many of his Australian friends.

The guest speaker and presenter for the evening was Chris Long, well-known for his research into early recording techniques, the beginnings of broadcasting, early television and many other electronic subjects. He reminded us that it is now 30 years since television broadcasts began in Australia, 50 years since the first public broadcasting of television in Britain and 60 years since Baird gave his first demonstrations of live television. Chris' audio-visual display depicted the early transmissions of still and moving pictures by electrical means.

There were demonstrations of very early French facsimile pictures transmitted over telegraph lines, in 1863. Two Australians, Taylor and Wilkinson transmitted FAX pictures by radio in 1910 and most have been the first in the world to do this; however these were only still pictures.

With the advent of the rotating Nipkow disc, with its scanning holes and the use of the photo-electric cell, primitive moving pictures could be produced. The use of the new radio valves would show the way ahead. A young Australian, Donald McDonald was one of 3AR's first engineers and in 1926 was sent to America on a fact-finding tour, investigating the latest developments in radio. There he discovered that experiments were being made with television in that country and he brought pieces of equipment, circuits and ideas about the construction of television transmitters and receivers back to Australia when he returned.

In 1927, McDonald floated a company in Melbourne called Television and Radio Laboratories Pty Ltd, about the same time as John Logie Baird was forming his company in Britain. Both were using Nipkow discs for transmission and reception.

In 1928, McDonald hired, as his chief engineer, Gilbert Myles VK3KO, pioneer of amateur radio, who later was the first to sign VK3KZ. Gil was responsible for the electric and electronic design of the equipment, both transmitters and receivers. On 10th January 1929, they commenced transmissions of both facsimile and 30-line television on Broadcast Radio Station 3UZ. These video programs were put to air after the station had closed its normal transmissions and went for about 30 minutes, two nights per week for about six months.

Australian engineers had very advanced ideas in the television field, and Robert Strange took out a patent for producing stereo pictures using interlaced fields. Another Australian patent included a master synchronous pulse generator to drive the cameras and receivers in synchronism. These were very clever ideas for their time. The AWA company was experimenting with the facsimile method of transmitting pictures and in

Kevin Duff VK3CV
RAOTC PUBLICITY OFFICER

1929, sent still photographs to England, by wireless.

In 1925, John Logie Baird was giving demonstrations of his television system in London and this had the great advantage that real objects, faces, etc could be transmitted without the use of film. Late in 1926, Baird began to transmit live pictures on station 2TV and that is where it all started.

From 1929 to 1935, the BBC transmitted programs using the Baird 30-line system. In Australia, in the early 30s, most of the local experimental transmissions were made by enthusiastic amateurs and the PMG allocated a channel on 2.200 MHz for this purpose.

Baird spent almost a year in Australia in 1938, as a guest of the IRE during the World Radio Convention. He brought with him a large amount of television equipment of the high definition type, including receivers using cathode ray tubes. Most of the teething problems of high definition television were now overcome. The era of mechanical television was fading fast.

Is there any use for mechanical television now? Chris thinks that there certainly is. In response to an article in Wireless World in 1972, several like-minded experimenters were discovered and as a result the Narrow Band Television Association was formed in Britain. It now has produced a quarterly magazine for the last 10 years. If any readers are interested in putting Narrow Band Television to air, you could phone Chris on (03) 82 1688.

Our President, Max VK3ZS, thanked Chris for his splendid presentation about the birth of television, which everyone enjoyed. He then spoke of our long-time Secretary/Treasurer, Harry Cliff VK3HC, who has now retired from the position after a decade of work, looking after our Club. Harry was presented with a fine pen to keep his log book up-to-date. Harry thanked the gathering for his gift and good wishes and suggested that his successor, Harold Hepburn VK3AFQ, would have no problems because the Committee was always ready to help. Harold was welcomed to his new position.

Net Controller, Lay Cranch VK3CF, is, after being at the sharp end of the monthly net for a very long time, passing on his duties to Mac McConnell VK3RV. Lay thanked the net liaison officers and controllers for the assistance that they have given him in the past and he felt sure that this would continue with Mac in the chair. Lay concluded by saying that the people he had worked with are "The grandest bunch of blokes that a lifetime has produced".

Harold VK3AFQ, then spoke about funds and thanked all members who have sent donations to help our magazine to be published and forwarded.

Also, Bob Cunningham VK3ML, spoke about the lack of feedback received about the OTN Journal.

Other things discussed were — do members want two Luncheons per year and not have a Dinner? Where are our younger members?

Bob suggested that a lot more communication from members, to the Committee, would help shape the directions of the Club.

ELECTION OF RAOTC COMMITTEE

The present Committee opted to stay in office for the next year if required and as there were no other nominations, the present Committee was re-elected for the next 12 months.

The AGM then concluded.

THANKS, WIRELESS INSTITUTE

Harry Atkinson VK6WZ
5/97 Railway Parade, Mount Lawley, WA. 6050

"Thanks and appreciation for the valued assistance of Institute members in providing communication within seven minutes of our request."

This was the gist of a letter received recently by the Secretary of the WA Division. It was written by Mr C C Ainsworth, Co-ordinator of the State Emergency Service, Kalamunda squad, following a serious bushfire in the district at the end of January.

The emergency repeater, VK6REE, was activated and put at the exclusive disposal of the Emergency Service for bushfire communications and it was the speed with which this was done that prompted the letter from Mr Ainsworth. With the close liaison which exists between all fire-fighting groups in Western Australia, and local government, this sort of co-operation can only further the cause of amateur radio.

Mr Ainsworth made the further point that several of the SES members in the Kalamunda/Gosnells Emergency Service were amateur radio operators.

It is up to all members and all Divisions to make the most of these instances of co-operation and goodwill between local government, bushfire brigades, civil defence and other bodies, both paid and voluntary on the one hand, and the amateur radio service on the other. By carefully, calmly and factually making details known to the media and general public, we can all do our part towards improving our hobby's image in the minds of neighbours and civic authorities.

It may give us some short-term satisfaction to rub someone's nose in the dirt by quoting a legal decision in the matter of Bumbletown City Council versus Joe, a licensed amateur who was given the go ahead to erect his tower and the civic fathers were ordered to pay his legal costs as well as their own ... but it is much nicer if we can let civic authorities know what decent citizens we are ... and allow them to make up their own minds about the value of our hobby to the community at large.

By all means collect all the facts you can on privately-owned trees that drop branches on neighbour's houses or garages ... on dog breeders whose activities disturb the peace ... on pigeon-fanciers whose winged messengers keep you awake with their noise and whose sanitary habits despoil your home ... by all means compile a dossier on these things lest, one day, you need a lawyer to plead your cause in court to have the right to peacefully and without risk to neighbours, pursue your hobby.

But remember, it always is much better to prove you (and your hobby) are right, rather than prove some city council wrong. There is a difference. Being told in open court that you are wrong leaves a nasty feeling; discovering that some amateur who wants to erect a properly engineered safe mast or tower is a good citizen makes you (the civic authority) feel good — especially if you find out this amazing fact without being taken to court by some of the Harry Atkinson VK6WZ, on behalf of the WA Division of the WIA.

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A R Showcase

FREQUENCY LISTS FOR SWLS

Two new publications, designed to provide the SWL with all those unknown frequencies at their fingertips, are now available.

The first, is by well-known German author Klingentuffs, *Guide to Utility Stations* is a soft bound book containing 465 pages of frequency users, their operating schedules, modes of operation (SSB, RTTY, FEC, ARQ, FA) over a frequency range of 0 to 150 kHz and 1.6 to 30 MHz.

An added bonus to the purchaser of *Guide to Utility Stations* is the 12th edition of *Guide to RTTY Stations*. The combination lists over 1500 frequency users including, amongst others 80 RTTY Press Services, along with 502 of their frequencies. As a further bonus, three large fold-out maps show various areas and the frequencies used within them, by the Aeronautical Services over different parts of the globe.

Guide to Utility Stations is available from GFS Electronic Imports for \$45 plus \$5 postage and packaging — catalogue no UG-86.



The second publication is by Michael Schaay, a highly respected Dutch author, who has gained his reputation through a number of well received previous listings. Known as the *Radioteletype Press Broadcast Time/Order List* it is ideal for those interested in monitoring the world's press services.

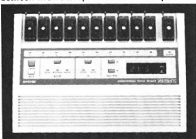
Its easy to follow layout lists of 56 different agencies in Time Order, a total of 1500 entries. For those interested in a particular Press Agency the *Radioteletype Press Broadcast Time/Order List* also contains a Time/Frequency schedule for each agency. Price is \$25 plus p&p, catalogue no RTPB.

Further information may be obtained from GFS Electronic Imports, 17 McKee Road, Mitcham, Vic. 3132. Phone (03) 873 3777.

INTELLIGENT GANG PROGRAMMER

Similar to the SE-4948 intelligent portable programmer, the new SE-4948 intelligent gang programmer from Allatron sets new standards in the high speed production of programmed PROM devices. Featuring the new authorised algorithms, programming times are reduced to at least a quarter of the conventional method and in most cases much more.

PROM devices from 16 kbits to 512 kbits are supported. Most popular EEPROMs are also covered. Programming voltages are determined according to the device type and may vary between five volts up to 25 volts as required. A



large LED numeric display indicates device type and programming algorithm employed. Naturally a check sum is also displayed. For devices with automatic identification capability setting up is done automatically.

The SE-4948 automatically programs 10 devices simultaneously and has extensive checking features to allow even a relatively unskilled operator to use the machine without danger of damaging costly devices. The SE-4948 already has approval numbers from several semiconductor manufacturers.

For further information contact Allatron on telephone (03) 758 9000.

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AMATEUR RADIO TOUR

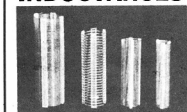
The Israeli Radio Amateur Club invites amateurs to participate in a 10 day tour of Israel. Special highlights of the tour will be transmitting from the Holy City and the Dead Sea, the lowest point on earth, meeting with Israeli radio amateurs, and participate in a tree-planting ceremony at the Silent Key Forest. Licenses will be provided free of charge by the Ministry of Communication to all licensed amateurs of general class and upward.



The tour is from 5th to 14th July 1986. Further information about this tour, or future tours may be obtained from Zvi Gelfand, Managing Director, Ortra Ltd, 2 Kaufman Street, PO Box 50432, Tel-Aviv 61 500. Mr Gelfand would be happy to plan an itinerary for a group or organisation to take a similar tour should the above not suit the requirements of participants.

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AIR-WOUND INDUCTANCES



No	Diam	Turns per		Length	B & W	Price
		Inch	Eqv			
1-08	1/8"	8	3"	No 3002	\$1.60	
1-16	1/8"	16	3"	No 3003	\$1.60	
2-08	1/8"	8	3"	No 3006	\$1.90	
2-16	1/8"	16	3"	No 3007	\$1.90	
3-08	3/8"	8	3"	No 3010	\$2.30	
3-16	3/8"	16	3"	No 3011	\$2.30	
4-08	1"	8	3"	No 3014	\$2.60	
4-16	1"	16	3"	No 3015	\$2.60	
5-08	1 1/4"	8	4"	No 3018	\$2.90	
5-16	1 1/4"	16	4"	No 3019	\$2.90	
8-10	2"	10	4"	No 3907	\$4.20	
8-10/7	2"	10	7"	No 3907	\$7.20	

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AR86



TESTS OF ELECTRONIC COMPONENTS

Climatic tests are used to improve the quality and reliability of electronic components and assemblies. Qualifying test determine the suitability of a component for a given application.

A qualifying test comprises three phases — characterising (electrical); environmental testing and detecting premature failures and determining failure rate.

Environmental testing methods employed in the second and third stages are often the same, however, the object in the second phase is different from that in the third.

Whilst electronic components are destructively tested to the limits of their serviceability in the second phase, they are only tested within permissible limits in the third phase so that premature failure can be detected.

Testing methods are high temperature storage, burn-in, temperature cycling and humidity testing. High temperature storage is a test performed with passive test specimens and is part of a pretreatment to stabilise the electrical and mechanical parameters. It is compared to malleability in metallurgy.

Temperatures of up to +200 degrees Celsius are used. The success of this test in detecting premature failures is minimal (5-10 percent), but it is relatively high in the case of EPROMs.

Burn-in combines high temperature storage and electrical operation of the components with the objective of accelerating the occurrence of premature failure. About 50-70 percent of potential premature failures are induced by burn-in. Burn-in is carried out primarily in the temperature range between +125+150 degrees Celsius. Oxidation can occur on the contact pins at this heat and have a detrimental effect on solderability.

Temperature cycling demotes tests in which the specimens are subjected to rapid changes of ambient air temperature in the order of at least 50 degrees Celsius per minute. Although the test is thermal, the effects on the structure of the components are mechanical. Different thermal conductivities and coefficients of expansion of the materials used produce mechanical stresses which destroy weak points in the structure.

Most commonly used test chambers have two different compartments with a cradle lift system which enables the test specimens to be transferred directly from a hot compartment to a cold one.

The liquid thermal shock test is particularly severe. The test specimen is immersed alternately in cold and hot liquids, and is used mainly for semi-conductor components.

Humidity testing at steady-state conditions are destructive and used only in qualifying tests.

The diffusion of water vapour through the plastic materials of housings is a process which causes internal corrosion and thus limits the useful life of integrated circuits.

The 85/85 test is a comparative test for identical types of components. High humidity, combined with high air temperature (+85 degrees Celsius/ 85 percent relative humidity), ensures a high diffusion rate. The test is usually performed with active test specimens. Testing time is measured in which 10 or 50 percent of a batch fails and the results are used as reference values for the quality of the plastic housing and the passivation process.

Compared with the failure rate of other components, the failure rate of semi-conductors is not significant. However, the situation is different in the case of highly complex assemblies. A 100 percent test on electronic assemblies, including trouble shooting and repair is extremely expensive. As a result, a combination of pretreatment and random testing of assemblies is becoming popular.

Continued from Electronics News — February 1986

Listening Around

Joe Baker VK2BJX
Box 2121, Mildura, Vic. 3500



IN TROUBLE FOR THAT

One day, as I was listening to San Francisco KGEI, I heard a broadcaster speaking from Paris stating that the French people do not know of the surrender in Europe. What a disaster, I thought as we had heard nothing of it either. A short time later the news came to hand that the Germans in Europe had surrendered. The end of the war in Europe had come!

I raced out of the hut and up to the Orderly's Room where I grabbed the microphone, called everyone to attention and told them that the war in Europe was over. Even the Orderly's Room I could hear the shouts of the hundreds of soldiers who had heard my announcement. It was unbelievable.

When I got back to the hut several officers confronted me saying "You are putting over misleading information, you will be in trouble for that." I attempted to reassure them that I had only broadcast what I had heard, but they were not convinced.

I told them to be sure to attend one of the American Army's film shows that night. These shows were always well attended and the main film was usually preceded by a news broadcast from the Bio Box, in which all the news of the day was given. (My friend Darcy was later drowned at sea).

After leaving 9AD, I joined an army newspaper unit called *Table Tops*. This paper had earlier been formed in Queensland. My job with this unit was similar to the one I had in Sydney prior to joining the Army. At *Table Tops* I had the use of about half-a-dozen telephones, each of which was used to monitor stations like the BBC, KGEI, or others that broadcast world news. My assignment was to gather news from any source. Not being able to write shorthand, I was confined to making rough notes of what I heard and copying anything I heard in CW from world newscasters. There were also two shorthand reporters who had a Number 11 set on which they could listen to the main news broadcasts.

From the hut where I listened I could see the giant screen of the Australian Army's Boomerang theatre where thousands of troops, each equipped with his own water bottle, ground sheet and box to sit on, watched the show. I had sought and obtained permission to erect a simple telephone between the giant loudspeaker at the back of the screen, a battery and headphones so I could hear the sound of the film from my listening post.

OUT OF ORDER

Now let me tell you, completely out of chronological order (as my close friends know, I am not of a methodical nature), about some of the incidents concerning the Boomerang theatre. While I was still at 9AD, we were friends with three Indonesian natives who were employed mainly to wash our clothes. They had a tent just outside our area with a loudspeaker formerly installed for them by the 9AD technician. This was connected to a dual-wave radio so they could hear Indonesian dance music and news broadcasts from Radio Australia in Indonesian.

The three Indonesians were 17, 16 and 11 years of age, and it was often our custom to take them along to the Boomerang theatre, a treat which they were forbidden to receive. They were strictly forbidden for anyone other than troops to attend so we used to dress them up in pieces of Australian Army uniforms and smuggle them in, warning them not to speak. If they spoke they could be immediately recognised and be placed in Military Police custody and get us into trouble as well.

KICK IN THE SEAT

We escaped detection many times but one night, when I asked the 16 year old if he would like to go to the show he expressed great fear. As he was usually very eager to go I was puzzled by his sudden unwillingness. It eventuated that, one

night when I was on duty, he had decided to go to the theatre by himself. Perchance, a military policeman saw him, caught him and gave him a verbal thrashing as well as a swift kick in the seat and told him that the next time he was caught it would be gool.

Another time, Gracie Fields (The Biggest Aspidochelone in the World) and her husband came to visit. She had come to sing at the Boomerang and when there were thousands there to greet her, in fact there were so many there that many had to position themselves on the roof of the toilet block. During Gracie's performance they got so excited that they fell through the roof!

The Army Amenities Station had rigged up a special land-line to relay Gracie's performance to the rest of the island. Unknown to all, including Gracie, an officer at a heavy duty wireless unit nearby had decided to let Gracie have not only an island audience, but a world-wide audience. He arranged the unauthorised broadcast using a high-powered transmitter. This broadcast was heard in Australia and a well-known radio magazine of the period wrote a story about this broadcast. The first of similar broadcasts that the troops in the islands were given there was an official inquiry into the matter later.

NAMES

Looking at Morotai island on my Atlas of the World, I see that there is only one town marked. We were told that the name of the town was never heard of this town, but it may have been in our area! There were many Australian units there, even the Ninth Division after it had returned from Europe. Whilst there was only one main road running the length of the island, the location of each unit had been given names such as Carabury, Moore's Ponds, Bondi or even perhaps, Dandenong. These were names which reminded the troops of their homeland — the home they had come to Morotai to defend.

These suburban place names were all interconnected by Army field telephones, trunk lines and exchanges, so if you wanted to make a call from one unit to another, it was often a matter of dialling your number into several switchboards before you got to the wanted party. The most used telephone was the ever-faithful "Don Five", which could be called by magneto or bell, although its calling device was a small Morse key.

INKY BLACKNESS PENETRATED BY BEAMS OF LIGHT

Large numbers of Australian troops were camped on the peninsula, and were there when some Zeros came over dropping bombs. I think the most terrifying part of being on the ground during a bomb-raid is the minutes before the enemy comes overhead. First news of an impending raid was given by the coast watch radar, then up go the red rockets, the wall of the sirens begins and all lights are doused. It is an eerie feeling.

I recall one night when I was on the peninsula. It was around midnight and we were awakened by the screaming sirens. I arose from my bunk and went to the flap of the tent to see what was happening whilst my companions remained where they were lying. The first of the enemy's incendiary bomb had their name on it, it wouldn't matter whether they were lying down or standing up.

Suddenly, the inky blackness of the night was penetrated by the beams of about twenty coastal search-lights which all came on simultaneously as if controlled by a master-switch. Immediately, at the focal point of the criss-crossing of the powerful beams, the enemy's aircraft appeared. I saw one tiny aircraft attempting to zig-zag, as the pilot had apparently been blinded by the bright lights. He dropped several bombs, one of which landed about a quarter of a mile from our camp blowing an enormous hole in the ground. The plane was then chased out to sea by about three RAAF planes. The last I saw of it was in the glare of the

At the time of my stay on Morotai Island, there were an estimated 10 000 troops there, Americans, Indians and Australians. Prior to when the Australian Army Amenities Medium Wave Broadcaster, 9AD, came on air there had been several other broadcast stations. The main one was WVTL, a station which was constructed mostly of junk parts by Australian and American signallers, and operated by a unit called the 96th American Division, I believe.

BROADCAST LIVE

WVTL often relayed news from Radio Australia for the Australians, and San Francisco KGEI (there was no Voice of America then) for the Americans. There was always trouble with the WVTL transmitters — they always had induced hum on them, a problem which was never fully rectified and one which the listeners had to get used to.

After the surrender of Japan, General Blamey participated in ceremonies on Morotai Island. These ceremonies were held on an open area of land, ringed by members of all the forces who had fought in the war. WVTL attended with an outside broadcast unit and broadcast the proceedings live to the island. The ceremonies involved a surrender document being signed.

Some weeks later, WVTL closed down as the Americans prepared to return to their homeland, and a ship off the shore began broadcasting on the medium wave band. All announcements for the shipborne broadcasters had to be delivered to them by boat. These consisted mainly of announcements for concerts, parties and film shows on the island. However, this station was not on air very long before 9AD began transmitting.

At the end of the war in the Pacific, there were many enemy POWs on the island awaiting the war trials. They often did many of the menial tasks around the camp.

One day, I was asked to be present at one of the war trials on our island. The defendant had killed many unidentified allied POWs on a nearby island. When he was asked how he felt when he was told by his senior officer to kill, he said that as a soldier of his army he was supposed to obey his superior officers without question.

I mention these matters because they were part of my stay on Morotai and war is tough. I can only write the story as I saw it.

I was present on Morotai when our prisoners were released from POW camps. Many were brought to Morotai where they received medical treatment before returning to Australia. Many were skin and bone and I shall never forget the sight of them — mere skeletons.

Before joining the Broadcasting Unit, 9AD, I was at the camp we had established after landing on Morotai (see a previous *Listening Around*).

My mate was a chap named Darcy Tanner, and I had worked with Darcy on the staff of the Sydney Daily Telegraph prior to our being called-up for service in the Army. Darcy and I decided what the camp needed was a news-sheet and, being formerly employed by a newspaper, we decided to do something about it.

OUR OWN LITTLE NEWSPAPER

I had a typewriter but we had no paper and there was better to get supplies but our former employer in Sydney had sent to the personnel manager of the Daily Telegraph. He in turn promptly sent us enough paper to keep us going for quite some time.

Darcy had a gift for writing poetry so whilst he wrote verse, I gathered the news by radio from a receiver that was in the Salvation Army Officers' hut. We then printed it out on sheets, about A4 size, and posted them up on bill-boards throughout the camp. Also, as I had helped to install the camp's amplifying system, I was given permission to use the system from the Orderly Room when I had anything resembling a "scoop" from an overseas source.

beams which were trying to follow it over the water.

INVASION HAD COMMENCED AND WE WERE SURROUNDED

We were well rehearsed in invasion procedures for it was believed that the enemy would attempt to invade us from the sea. Hundreds of servicemen were watching a film at the Boomerang theatre one night when suddenly the film stopped and the powerful light, which was used during interval, was switched on. No announcement was made but we could hear the sound of distant gunfire. Rumour quickly spread through the crowd that the invasion had commenced and we were surrounded.

In the blind panic that followed, soldiers began to run in all directions. In my own panic, I ran through a bushy area headed for the "invasion assembly point" of my own unit. In my hurry in the darkness I fell over a log of wood and was trampled on by half a dozen other soldiers all heading somewhere in a hurry.

Upon arriving at the assembly point we discovered the scare was a false-alarm as news had been received by radio that the enemy wanted to end the war and as the crews manning the coastal guns had been the first to receive the message the gun fire we had heard was from their guns, fired in sheer joy at the thought of the end of the war.

TORPEDOED BY A SUBMARINE

Whilst on duty in my radio hut at *Table Tops* I received a distress message from a Catalina Flying boat which had landed somewhere in the China Sea. The call was made using CW, giving a fix in latitude and longitude, and identifying call letters. I wrote the message down, then not knowing exactly what to do about it, went to the tent of my editor. It was about midnight so of course I had to extract him out of bed. His experience was strictly journalistic and he was not into the mysteries of electronics. He inquired if I had replied to the message but I reminded him that we had no transmitting equipment. This was the reason I had referred the matter to him in the first place as he was my senior officer, and as such should know what to do about it.

The last I knew of the matter was that he had telephoned the message to the RAAF. Maybe I had doubled up with the RAAF's own monitors but nevertheless I did what I thought was best in the circumstances.

This was the second distress message I had intercepted — the other being from an American passenger vessel which had been torpedoed by a submarine in the Pacific.

I am now nearing the end of my stories from Morotai Island, I hope they have been of interest.

73 from Joe VK2BJX.
JR



Spotlight on SWLing

Robin Harwood VK7RH

5 Helen Street, Launceston, Tas. 7250

Well, Winter has arrived, and although I am writing this in mid-March, I have been able to determine that there has been an ever-so-slight improvement in propagation. True, there have been more pronounced drop-outs on HF, yet I think we may have possibly turned the corner as far as the current cycle is concerned. Propagation on the higher frequencies, such as the 13 and 16 metre broadcasting allocations, has dropped off as expected. The 13 metre band also closes much earlier in the local evening-hours, although there are quite a number of interesting signals in the local daytime-hours.

EUROPEANS EARLIER

The change of season also means that we will hear many European signals coming through much earlier, from 0200 UTC, particularly on the lower frequencies, such as the 31 and 49 metre bands. Interestingly, some of these signals on 49 metres are coming across Antarctica or pretty close to it around that time. This has been noticed by many experienced DXers and SWLers for some time. This is especially noticeable on signals from the UK and Central Europe. As well, the AFRTS station at McMurdo Sound, Antarctica, can be detected, usually with an Auroral flutter on the carrier.

Later on, say about 0300 UTC, the propagation alters, coming across Central and South America. There are some relay stations of the BBC and Deutsche Welle in the Caribbean, as well as Radio Netherlands/TWR in Bonaire, who put in very good signals.

TARGET TO CHILE

In the winter months, broadcasts that are targeted to the Americas from Europe are audible here, particularly around mid-day EAST. One station in particular can be easily noted. The station broadcasts in Spanish and is on a number of channels simultaneously. Not surprisingly, it is Radio Moscow. There are two separate programs — one is specifically targeted to Chile. It sometimes is using another call, so do not get confused and identify it as being in Latin America. Besides being on a number of channels simultaneously, the senders periodically switch programs to RM's Latin American Service.

THE END FOR LYNTHURST

A piece of radio history in Australia recently came to an end. Radio Australia ceased using the

Lyndhurst site, which has carried programming for Radio Australia to the South Pacific for over 30 years. The Shepparton site has commenced using all the frequencies previously occupied by Lyndhurst for RA. The primary reason that this change has been made is that the senders were getting old and obsolete, and were unable to compete with their puny 10 kW. Naturally, most SW senders are in the region of hundreds of kilowatts, so the signals were not as effective. The Lyndhurst site is continuing to be operational with the ABC Inland Service from VLR and VLH, with relays of Domestic programming. The Standard Time and Frequency Station, VNG, will also continue, yet the Lyndhurst site will be closing shortly. No decision has yet been made where VNG is likely to be re-located, but it could also be sited at Shepparton. The Domestic HF Service will probably be re-evaluated.

NEW SERVICES HEARD

And while we are on Australian HF Services — the ABC Northern Territory HF Service from Alice Springs, VLBA, comes into Launceston very well, particularly in the evening-hours, on 2.310 MHz. The other senders, VK6K and VLAT at Katherine and Tennant Creek respectively, will become operational in the near future. They will all carry the same program from the ABC Northern Territory Service in Darwin. As well, the service carries programming in various aboriginal dialects prepared by the Central Aboriginal Media Association and is separate from the ABC, from time-to-time. OSLS are available on ABC programming and not on CAMA produced programming.

Incidentally, the operational times for VLBA are 1900 to 2230 on 2.310 MHz; 2230 until 0730 on 4.835 MHz and 0730 until 1430 on 2.310 MHz. A report that the service will be a 24-hour service on Fridays is incorrect, judging by monitoring here. When information becomes available on the frequencies and time for Katherine, they will be passed on in this column.

The Radio Australia program *Talkback* is now aired at 0310 and 1610 on Saturdays, and 0530, 0910, 1230 and 2040 on Sundays.

Do not forget that a new broadcasting period commences on Sunday, 4th May at 0100 UTC. Until next time, the best of listening and 73 — Robin VK7RH.

AR

Ian J. Truscott's ELECTRONIC WORLD

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AR86



Pounding Brass

Marshall Emm VK5FN
Box 389, Adelaide, SA, 5001

This month, I have a strange coincidence, or two, to report. I received a letter from Tony VK1SG, who told me of some comments he had made in response to the Amateur Radio Questionnaire in December 1984, regarding publication in *Pounding Brass* of a list of time and frequencies for VIX and the other maritime broadcast stations for the benefit of those who are looking for good CW to listen to. He had received no acknowledgment, and hadn't seen any publication of the information, so he wrote directly to me. He was also prompted to write after reading the February column on keys and keyers. He has a double-bug, which carries the following inscription: Automorse, Hitchcox Brothers, Makers. K P Thomas, Adelaide. The key has been engraved with the name R S Hensley.

The first coincidence lies in the fact that the April edition of this column contained a description of the very device — *Tom VK5TL says a fellow by the name of Norman Thomas developed (a double-bug) here in Adelaide in the 1920s. The parts were made by Hitchcox Brothers, and Mr Thomas personally set-up and adjusted each one before shipment. Coincidence because this is being written in February!*

The second coincidence is this — the evening of the day on which I received Tony's letter, I had a phone call from Jenny VK5ANW, our Divisional Secretary, who told me she had just received a list of things to do from Bill Rice, the Editor, including a request for that very information originating from a VK1!

I can take a hint. I rang the Coast Radio Service installation at McLaren Vale, which is about 15 miles (24 km) south of here. I have driven by many times because it sits on a hill between a favourite

winery and the beach. The staff and manager (Fred Reeve), are very helpful and even offer tours of the facility — something I hope to report on in the near future.

The Coast Radio Service, a division of the Overseas Telecommunications Commission (OTC), provides a variety of maritime communication services, including message handling and weather broadcasts in copper-plate Morse, as well as more modern modes. Anyone wishing to improve their copying ability is encouraged to monitor the CRS frequencies.

The Editor has been asked to print extracts from the schedules. Copies of the complete guide (including phone frequencies) can be obtained, free of charge, from the OTC or any Coast Radio Station.

For those of you who are struggling to get up to five or 10 words-per-minute, I repeat the advice I have given several times. Listen to traffic well above your capability — even if you only copy an occasional character at first, you will soon find that the odd character becomes the odd word, and before you know it, you will be getting most of the text.

Tony backs me up — *"In the event of anyone arguing that these speeds are useless to learners, then I heartily refute that suggestion!"* When he was studying for his amateur licence over 25-years ago, he had to listen to VIX in Canberra and struggle on. There were no tapes for learners in those days.

The following extract from Tony's letter should be of interest:

"If only those empty and rather spiteful critics of CW could face up to the fact that CW can even still get, and be read, where phone never can, and

that it is still used for this reason all round the world where getting the message matters. Yes, technology will phase out CW in the end, though, of course, phone will be discarded first. I sometimes think of a world war ending, in disaster everywhere; all the super technology wiped out: no chips, boards, printed circuit boards available. Somewhere there would arise someone, probably an amateur, who could build a simple oscillator and transmit a carrier. What a pity if he didn't know Morse. If he did, and sent it, what if the man who had contrived a receiver, and heard the signal, himself didn't know Morse? We would have to wait, wouldn't we, until both sides managed to make a modulator and a microphone. Would it be AM or SSB? Perhaps they wouldn't be satisfied unless it was stered!

"I happen to know that, in the last war, the English brought in amateurs for training in radar operation, ground and airborne. Hitler had turned all the German amateurs off the air long before the war so their potential was lost."

"I believe that CW should remain mandatory in the amateur licence requirements even if only because of the possibility that one day the amateur community might be called upon to establish communications from what could be resurrected from the rubble of our civilisation. I would have to wait, wouldn't we, until both sides managed to make a modulator and a microphone. Would it be AM or SSB? Perhaps they wouldn't be satisfied unless it was stered!"

A listing of Radio Telephony Stations of the Coast Radio Service will be published next month.

Intruder Watch

Bill Martin VK2COP
FEDERAL INTRUDER WATCH CO-ORDINATOR
33 Somerville Road, Hornsby Heights, NSW 2077

Pat Hawker re Albanian broadcasting.

It seems that most people, including Pat, thought that Albania was NOT a member of the ITU, which could have accounted for the irresponsible broadcasting from Radio Tirana on the amateur segments of the 40m band.

However, Mr Sennitt points out that Albania is indeed a member of the ITU, which, coupled with the fact that Albania has, for the first time, registered some frequencies within the OFFICIAL bands, would perhaps give the naive among us reason to think that Albania was about to listen to reason, and get out of the amateur allocations ... *Don't bet on it!* (Radio Tirana, from Albania, can be heard DAILY on 7.085, 7.080 and 7.090 MHz).

WILL ANY BE RETURNED?

There is a WARC 87 currently being planned, to decide the fairer sharing of the present shortwave broadcasting spectrum. I hope the amateurs get their fair share *RETURNED!*

GOOD NEWS FOR IW

With the re-organisation of the International Amateur Radio Union (IARU) Monitoring System, (See AR December, 1985) an International Co-ordinator has been appointed in the person of Bob Knowles ZL1BA. The former IARU Region III Monitoring System Co-ordinator, Bob did a remarkable job as Regional Co-ordinator, and will certainly make things move as International Co-ordinator.

As mentioned previously, this is good news for the IW, as Bob will have access, through the IARU Executive Committee, to the International Frequency Registration Board (IFRB). As a result of

the vacancy left by Bob's move to the position of International Co-ordinator, I have been appointed Co-ordinator for IARU Region III. I look forward to now being in an even stronger position with regard to access to information, etc, and hope to be instrumental in helping to supply more ammunition for the Intruder Watch Guns to sink the Intruder Ships who sail into our frequency allocations.

See you all next month, and good DX!

ACKNOWLEDGMENTS

Practical Wireless, VK4AKX.



QSP

A MEMBER NO LONGER

Recently a subscription notice was returned to the Federal Office with a note stating why the members did not wish to belong to the WIA any more. The reason went something like this:

"I have been off air since an accident in April 1985. This accident occurred around 9am, while I was trimming my 160 metre antenna. The centre bolt shed its locking nut which fell five metres and landed on my skull. I then lay on the ground unconscious for some time until a neighbour noticed me on the ground and called my daughter."

The result was that when I regained consciousness about 11pm that night, I was in a straight-jacket in hospital.

I have made no effort to restore the transmitter and appear to have lost interest in amateur radio. As I am now 86-years-of-age this is to be expected.

As I have three ARs, in plastic envelopes, unopened I think I should cancel my WIA membership as I have lost interest in the bug."

This surely shows the determination, true grit and pioneer spirit of the amateur. It is sad that his amateur career should end so sadly.



Many thanks to the following for supporting the Intruder Watch in January, 1986.
VK2s: BHO, BOS, DEJ, DD, KPI, PS, A
Bradford; VK3s: XB, XU; VK4s: AKX, BG,
BHJ, DA, KAL, KHZ, MR; VK7RH and VK8HA.

Statistics, which are not really true for the month, as I was away from home for two weeks, are as follows:

Broadcast intruders:	38
CW intruders:	35
RTTY intruders:	14
Other modes:	17
Identifications:	10

The January reports that didn't make the January Summary will appear in the February Summary, which will balance out the two months totals.

HAVE YOU A 20 METRE BEAM?

I would very much like to hear from any person with a 20 metre beam, as I am looking for bearings on a teletype-like signal appearing on 14.032 MHz daily. I have bearings from the USA, but require some from within VK.

POETIC JUSTICE?

The USSR has been jamming a broadcast station on 7.050 MHz, and there is poetic justice there, for the intruder station UHF3, on 7.048 MHz has apparently had to QSY to 7.040 to defeat the jamming! *Serve 'em right?*

DON'T COUNT ON IT!

AG Sennitt, the associate editor of the World Radio TV Handbook, has replied to a letter from

Club Corner

SPECIAL EVENT STATION

On the occasion of the 75th Anniversary of the Royal Australian Navy, an amateur radio station, operated by the local members of RNARS, will be established at HMAS STIRLING on 11th May 1986. The call sign of the station will be VK6RAN. For further information, contact Chris Dodd VK6DV, 3 Liege Street, Woodlands, WA. 6018.

AR

DEVIL NEWS FROM THE NORTH WEST

Branch members were thrilled when the Penguin High School, where Branch functions are held, made available a bigger storeroom for storage of equipment such as the base station and RTTY gear.

All repeater modes are well in hand and the next activities night will see the six and two metre aeriels underway.

Frank, the Branch News-Co-ordinator advised that the last news broadcast was pre-recorded and sent to the news-reader, ready to go to air. It was well received.

The President of the Branch is calling for ideas and help to establish a base-station at Wynyard High School.

Frank VK7ZF, was the recipient of the Gong Award for the month. Frank attempted to make contact with VK3 through the repeater but he was talking on simplex and did not get through!

The Horse Trials, held at Westalla, just out of Ulverstone, was a great success, with 11 operators taking part. Some had two jumps to look after, others had three. The base was set-up at the start and as the horses left they were put on a stop-watch. As the proceeded through the course, their positions were relayed back to base, also the

Operators at the Horse Trials. From left: Bill VK7WL; Noel VK7EG; Tony VK7AX; Ross VK7WP; Noel VK7WN; John VK7KDR; Owen VK7OL.

Front: Greg VK7ZBT; Max VK7KY; John VK7ZPT and Jack VK7WJ.

results of each jump, how many clean jumps, how many refusals, etc.

An ambulance had to be called on two occasions, and help was on hand very quickly.

The operators were thanked for a job well-done and their presence at another one being staged shortly was encouraged.

On 20th February, two NW Branch members ventured to Crotty. Crotty is situated in the south-west of the State, which is approached firstly by a bitumen road, then gravel with the final approach being either by four-wheel drive or foot. The intrepid Winston VK7EM and Arthur VK7SE chose to walk.

Crotty was a mining town which closed down around 1900. At that time it had a good railway service to Pillinger and some of the carriages still remain in the bush — one with a large tree growing through it. Arthur and Winston walked down to Kelly Basin along the old railway track. Contacts were made back to VK7BV, VK7KAB, VK7KC and VK7WZ on 80 metres. The intrepid venturers were using a small home-brewed rig (built by Winston), a lead-acid battery and a dipole aerial slung over a couple of trees. Reports were 5 x 7-8.

A CW contact was also made, with good copy, on another home-brew transceiver, complete with key and speaker in a Strepsilis tin.

The boys must have looked quite a sight, lying on their stomachs in their tent, trying to cope with the rain and understand Morse signals which they had both thought they had forgotten, but the most memorable event of the trip must surely have been when Arthur produced a three layer sponge cake complete with candle to celebrate Winston's birthday.

On the return hike, the boys spoke to VK7PS and listened to the Sunday Morning Broadcast.

Truly a trip to remember.

Contributed by Max Hardstaff VK7KY

AR



AMATEUR RADIO FOR MGGS

An amateur radio station is being established at the Mentone Girls Grammar School by the Science Department as a first step towards the establishment of a Science Club. The Head of the Science Department is a licenced amateur, Paul Butler VK3DBP.

Although in its early stages, the school's radio station is already equipped to make contact with

the amateur community around Melbourne — using voice and computer communication (RTTY). Coverage will extend to other parts of Australia, as well as overseas, when a suitable antenna can be located. It is also hoped that amateur television will be added to the station when Paul's experiments with reception and transmission bear fruit.

In the long term, a ground station may be established for communicating through the amateur satellites.

Once operational, the girls plan to transmit regular bulletins on VK3RTV to attempt to communicate with other schools and interested parties.

The school is a member of the WIA and hopes to soon be operating under its own call sign.

Would it be the first all-girls school to have an amateur radio station?

Paul is willing to present a regular school radio network column for AR, what do other schools think?

Information supplied by Paul Butler VK3DBP

SOUTH EAST RADIO GROUP INC

The South East Radio Group will be holding its Popular Annual Convention again in June this year. This is the 22nd convention held by the group and this year has been registered as a Jubilee 150 event.

The convention attracts much interest due to the many interesting trade displays, kindly staged by the various companies involved in the retail of amateur related equipment. There are, of course, the ever popular competitions. Such events as fox hunts, hidden transmitter hunts and scrambles to name a few, are available for those interested in competing for excellent prizes and the perpetual trophy. Of course, it should not be forgotten that the renewal of old acquaintances and the meeting of those faces behind the microphone is, to some, the most important part of all.

The convention starts on Saturday, 7th June, with some fox hunts, followed by the evening by the Convention Dinner. The Sunday sees most of the serious competitions and, of course, the now famous Lunch and Tea organised by the hardworking ladies. It really is a must to come along to Mount Gambier on this weekend and join in the fun of this J150 event.

Mount Gambier is situated on the side of an extinct volcano (Mt. Lake), about half-way between Adelaide and Melbourne. There is much to see and do in this lovely city so come and enjoy yourself. Accommodation is normally plentiful, but as the city plays host to many sporting events, etc on this weekend it is a good idea to book early. For a full program, accommodation guide and any other queries, please write to the SERG Inc, PO Box 1103, Mount Gambier, SA. 5290.

Contributed by David Edwards VK5FF

AR

INTERIM REPORT ON THE SEQTG DUAL 147 MHz REPEATER

To date, the dual repeater facility construction has not been completed, although installation is expected within the next few months.

Since initial conception of the dual repeater system controlled by a shared single micro-processor, the project has taken many turns in view of practical construction and technicalities.

One major problem which has meant a complete rewrite of the system software is the change of micro-processor type. The original system was to have used the Signetics 2650 CPU, but the continuing availability of a disk-based 2650 system capable of being used to implement software/firmware updates is in doubt. A search was made over some months for access to a cross-assembler to allow assembly of the 2650 code, and a substantial effort was put into writing such a cross assembler, but was eventually discarded because of errors in assembly which could not be corrected.

Recently, a decision was made to implement a Zilog Z80 CPU as the active processor. This of course has meant that the nearly completed 2650 program had to be discarded and only used for program flow. Although the basic dual repeater control software has been completed, the mess-



age store and test facility has not, and installation will not be proceeding until all software has been implemented to ensure that software — hardware compatibility problems are solved off-site. In addition, redesign of parts of the peripherals has been necessitated due to the change of processor and the incompatibility of its control signals.

The completed repeater facility will be installed in a shortened 482 mm rack in the following manner:

CONTROLLER
MODEM INTERFACE
CHANNEL 1 147.658/147.650
CHANNEL 2 147.675/147.675
MAINS POWER DISTRIBUTION
DIPLEXER & FERRITE ISOLATOR
(6 RESONATORS & COAXIAL HYBRID)
BACKUP BATTERY

With the exception of the mains distribution panel, all other rack chassis are a standard height black unit, featuring white function lettering.

The channel 1 and channel 2 RF chassis are identical internally and externally, the only difference being the crystals fitted in each transceiver. Each chassis has its own internal mains power supply with battery backup facility, a hardware logic card capable of complete repeater operation including timeout and tail timing and Morse identification. The changeover from internal hardware to external controller is achieved by changing the logic level of a single pin on a rear-mounted connector. The logic is fail-safe in that it requires an externally derived source to effect this changeover. These units are capable of stand-alone operation, only requiring a diplexer and power source.

The transceiver used in each unit is a FM828-25A, modified to allow full duplex or repeater use. Each is capable of sustaining RF output levels of 20 watts or greater. Receiver sensitivity has been measured at about 0.3 microvolt for 120B SINAD, and muting sensitivity about 0.2 microvolt or better. Internal sub-audible (CTCSS) decoders set to 123.0 Hz will be selectable to allow full CTCSS operation in the future.

The modem interface chassis (not yet completed) will consist of demodulators and modulators for various standards currently in use. These include 170 Hz shift (2125/2295 Hz) to 110 Baud, KANSAS (1200/2400 Hz) to 1200 Baud. An additional modem using another standard is being considered for control purposes only.

The controller chassis will consist of a Z80 processor card supporting a minimum of 32k of RAM (to 48k), 4k of EPROM, a real time clock/calendar, a speech synthesiser and a programmable communications interface capable of operation down to 45.45 Baud under crystal control. An analogue-digital converter (ADC) chip with 16 input channels is also likely to be implemented to

allow remote monitoring of the various supply voltages within the system. It also features its own internal mains power supply with memory battery back-up only.

All inter-connections, except power, between chassis use DB25 series connectors, the only chassis with more than one being the modem chassis which acts as a common identification point.

The diplexer (yet to be re-manufactured from the existing facility) will consist of six resonators in band reject mode, three in each leg. Tests on a new configuration show that rejection figures per resonator can be approximately doubled (compared to the same resonators in T shunt mode). Rejection per leg is expected to be greater than 100 dB over the 40 kHz (dual channel) bandwidth, coupled with a lower insertion loss at the pass frequency. The coaxial ring hybrid has been manufactured and provides a minimum of 40 dB transmitter to transmitter (port-port) isolation. Maximum isolation measured was 53 dB, low in the 146 MHz part of the band. A ferrite isolator with a maximum rejection of 64 dB will be installed on one transmitter or the diplexer transmitter feed point, whichever provides the greatest transmitter intermodulation rejection. An additional series bandpass resonator is to be included in the common receive leg to provide some rejection from other adjacent services, and if required, yet another resonator will be fitted to provide notching of paging frequencies from the adjacent facilities.

A new backup battery has yet to be purchased. The completed rack when installed in the Philips Communication Services building at Mount Cotton, will be connected to a 6 dB whip antenna relocated to the top of a large pipe, well above the buildings roof. This should provide unobstructed coverage in all directions. One requirement stipulated by PCS to allow this installation is that the finished product must be of a professional standard.

As could be expected, this is not an easy project capable of completion in a few weeks. The project has taken considerable time in all phases, the initial planning, the licensing, the physical construction and the software development. And the project is not yet complete. The research costs are high but the value of the end product to the amateur fraternity is of major importance.

Also, the material cost are quite high. The two transceivers were purchased in near-new condition with a high price tag. The controller memory is worth about \$200 alone. The other hardware, including all the ICs and smaller items, coaxial connectors, etc total up to an amount that would astound the average amateur. Most users do not appreciate the money, time and energy commensurate put into creating a repeater of this type. At this time, installation at Mount Cotton is expected within the next few months.

Written by Doug Hunter VK4ADC and contributed by Robert Green VK4UGJ AR

MOST EXPENSIVE IN-HOUSE COMMS

Canberra's new Parliament House, due to be opened in 1988, will have one of the world's most expensive in-house information and communication systems.

The house monitoring system will be capable of handling 100 television channels with stereo sound and 100 FM stereo radio stations.

It main task will be to link off-air broadcasts and the proceedings of both chambers to Hansard, the press gallery, the Parliamentary Library, the Member's rooms and public areas.

It is expected that only 55 stereo television channels and ten stereo radio stations will be in use when the building is opened for Australia's Bicentenary, but as the building has been designed to last at least 300 years, facilities have been planned for future needs.

The reticulation system for both systems includes 21 km wideband 50-450MHz super low loss coaxial trunk cable, 80 km super shield coaxial drop cable, 600 taps, 1500 splitters and 82 wideband line amps.

Condensed from Electronic News — February 1986

DOC ENFORCES THE NEW RADCOMMS ACT

An unlicensed radio operator, who identified himself as the original wombat, was driving a locomotive around a Sydney railway yards late at night transmitting obscenities.

Stopping his illegal activities was all in a night's work for Department of Communications' radio inspectors. They knew someone was operating on the Amateur Radio Frequency Band without authority at the Enfield marshalling yards, so the inspectors took their VHF monitor and went to track him down. But the signal was moving, and when a locomotive went past the signal peaked.

A look at the Department's records showed that the train driver was licensed to operate on the CB band, but not on the VHF amateur radio frequency. The story ended in court. The wombat had \$300 worth of equipment confiscated, and was fined \$200 plus costs.

But it's not a matter of enforcing licensing laws for the sake of revenue. The radio frequency spectrum is a natural resource. But it is finite. There is only so much room out there and it has to be a lot of users, from mass distress callers to satellite television broadcasts. Unauthorised use of radio equipment interferes with all sorts of legitimate transmissions: amateur use, broadcasts, and much worse, essential services. The Department's job is to protect these transmissions.

In one case recently, a Queensland man made repeated calls to emergency services on marine distress channels, claiming he was with several other people in a boat outside the Southport sandbar. The condition of the bar at the time was dangerous. Although he did not say his boat was in trouble, his continued requests for information about the bar, and his failure to acknowledge repeated warnings alarmed the rescue services. In fact, he was transmitting from his home.

As well as losing the equipment (which was borrowed from a friend who also did not have a licence), he was fined \$300 plus costs.

Both of these cases were prosecuted under the old Wireless and Telegraphy Act 1905. Late last year, the new Radiocommunications Act came into force, replacing it. Penalties under the new Act are more severe, as another Queensland man found out. He made straight-forward hoax distress calls to the Cairns coast guard, and was fined \$2500 and had \$150 marine transceiver and a \$200 CB transceiver confiscated.

In recent cases involving unlicensed operations of CB equipment, the minimum fine imposed by courts has been \$400. Fines of up to \$750 are common. Although the number of offenders prosecuted Australia-wide before the new Act came in had dropped, the conviction rate had risen to 100 percent. With the new Act, the Department not only expects more prosecutions, but is planning to introduce on-the-spot fines similar to the ones given out for traffic offences. This will free radio inspectors to check on more unlicensed transmissions, so that everyone can use radio frequencies, for fun or in emergencies, without interference.

The future looks bleak for wombats.

Bill Palmer for DOC Public Relations

VHF COMMS MAGAZINE

The Publishers of VHF Communications, advises that the final edition for 1985 will be printed in the next two to three weeks.

They are gradually making up for lost time caused by the unfortunate death of the previous translator.

The publication of only three editions for 1985 had been considered, but would have caused difficulties with payments. A delayed fourth edition is better than none at all.

The Publishers would like to thank all subscribers for their understanding and sympathy with their problems.



VK2 Mini-Bulletin

Tim Mills VK2ZTM
VK2 MINI BULLETIN EDITOR
Box 1066, Parramatta, NSW. 2150

DISPOSALS ITEMS

Periodically, there are Trash and Treasure days held at Amateur Radio House. The Division has items left over from these various events and some of the components are on sale at the Office. Any member who would like a list of components available should send a stamped self-addressed envelope to PO Box 1066, Parramatta, NSW, 2150, for a copy. Left over from the March T & T was an assortment of printed circuit boards for commercial two-way radios. There are also still some 10.700 MHz crystal filters, as advised in a recent AR.

JUNE FIREWORKS

Plans are underway to hold the annual fireworks evening at Dural, during June. Details will be given on the Sunday Broadcasts. An indication of attendance will be sought on the Broadcasts, so please respond when the item is announced.

SUB-COMMITTEES

This is the time of the year when the Division checks out the various sub-committees. By now, the new Council positions will have been determined. The Broadcast has been detailing these various committees and if you are in a position to assist, please contact the Office.

DIVISIONAL ADDRESSES

To avoid any confusion and delay, all items by mail, except QSL cards, should be sent to PO Box 1066, Parramatta, NSW. 2150. The QSL address is PO Box 73, Teralba, NSW. 2284. There is still mail arriving at the old Divisional addresses, even five-years after they have been cancelled.

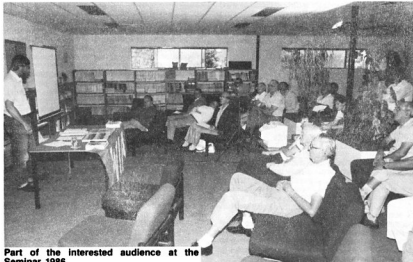
BROADCAST QUESTIONNAIRE

There was a good response to the questionnaire concerning the Divisional Broadcasts, which was distributed earlier this year.

At the time these notes were being assembled, the Questionnaire results were being tabulated. The results will be published in a later AR.

REPEATERS

Investigation for an alternative channel for Liverpool continues. They had a pager move in next-door. :: WICEN 7150 had a failure of the



Part of the interested audience at the Seminar, 1986.

transmit-side earlier this year. Equipment upgrade is currently underway. :: Armidale District ARC have recently obtained permission to site a 70 cm system on a local hilltop. :: Summerland ARC are still trying to obtain permission to a site at Byron Bay for a two metre repeater. :: Illawarra ARS have submitted an application to co-site a packet repeater (7575) with their RAW 6850 service. :: Assessment forms for repeater applications are available from the Divisional Office.

MARCH 1986 SEMINAR

To mark the end of the VK2 Division's celebration of the 75th Anniversary Year, a seminar was held on Saturday, 8th March.

Included in the proceedings was the closing of the Time Capsule which is intended to be opened in 2010.

The morning speakers at the Seminar were Colin Christiansen VK2BCC/VK0CC, who spoke about his trip, in the latter part of 1985, to Heard Island, as Radio Operator with the scientific party. Roger Harrison VK2ZTB, spoke about his discussion paper, *Amateur Radio — Future Direction*, which was printed in February 1986 AR.

After lunch, the final material was placed in the Time Capsule by the President, Peter VK2PJ, and the lock was closed by Roger VK2ZTB. It will be interesting to see which of his points from the discussion paper will be in operation when the capsule is opened.

The afternoon lectures were given by Gordon McDonald VK2ZAB, who spoke about *Enhanced VHF/UHF Signal Levels due to Aircraft*. AR readers will have seen Gordon's articles in October 1985 and February 1986 issues.

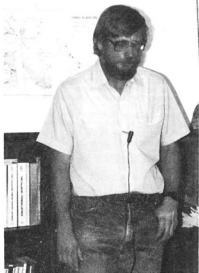


Gordon VK2ZAB, discusses Aircraft Enhancement.

The final lecture for the day was presented by Dr Trevor Bird, from the CSIRO Radiophysics Department. Trevor spoke on antennas for satellite communications.

The three seminars (1984, 85, and 86), were video recorded and copies are now available for loan from the Divisional Office. The format is VHS, either as single copies or two on the one tape. Details are available from the Office during the week, 11am-2pm, on (02) 689 2417, or by writing to the above address.

The Federal Video Tape Library also has copies, available under the conditions outlined by the Co-ordinator, John VK5KG, in the March edition of *Amateur Radio*, pages 52 and 53.



Col VK2BCC, recently returned from the Antarctic, spoke of his exploits as Radio Operator for a Scientific Expedition to Heard Island.



Roger VK2ZTB.

Forward Bias

Ken Ray VK1KEN
Box 710, Woden, ACT. 2606



ELECTION OF 1986 COMMITTEE

At the Annual General Meeting, held on 24th February 1986, the following members were elected to the Committee:

President — Alan Hawes VK1WV
Vice-Presidents — Kevin Olds VK1OK and George Brzostowski VK1GB
Secretary — Ron Millikin VK1KRM
Treasurer — Ken Ray VK1KEN
Federal Councillor — Fred Robertson-Mudie VK1MM
Committee Members — Phillip Rayner VK1PJ, Ray Roche VK1ZJR and Carl Makin VK1KCM

PACKET RADIO IN VK1

Col VK1AU, dropped a short note on the VK1 Packet Radio scene. It reads thus:

VK1 joins the world Packet Radio revolution with more than a dozen stations equipped with Terminal Node Controllers developed by the Tucson Amateur Packet Radio (TAPR) Group. Digital communication will be heard on VHF FM, 147.575 MHz (1200 Baud) and 14.103 MHz (300 Baud LSB, 1200 Baud USB). Packet stations all share the same frequency, operating simultaneously using time-sharing techniques.

In late 1985, John VK2XY, spoke at the monthly meeting about Packet Radio. The presentation included a live demonstration, with several

stations operating in the meeting room. This has sparked interest in several VK1s, as bursts (literally) of Packet activity can be heard nightly on two metres.

COMMUNICON '88

An early warning for you all to keep April 1988 free. The VK1 Division is holding a major communications and amateur radio convention in Canberra during that month, as part of the Bicentennial Celebrations. Hopefully, the 1988 WIA Federal Convention will also be part of the events in Canberra at the same time. This should be the largest amateur radio event held in Australia, and you owe it to yourself to be there.

Already major international companies have indicated a willingness to be involved with the event, and we have booked accommodation and substantial exhibition space. More information will be forthcoming soon, but remember, the place to be in April 1988 will be at Communicon '88.

NEW DIVISIONAL ADDRESS

The new address for all correspondence to the VK1 Division is: **GPO Box 600, Canberra, ACT. 2601.**

The old Queen Victoria Terrace address will remain for some time until the new address has filtered through internationally.

AR

VK4 WIA Notes

Bud Pounsett VK4QY

Box 638, GPO, Brisbane, Qld. 4001

President — Peter O'Connor VK4KIP

Vice-President — David Brownsey VK4AFA

Treasurer — Shaun Connolly VK4CO

Vice-President — Barry Riddell VK4ZBJ

In his Annual Report to the Group, the immediate past President, Doug Hunter VK4ADC, commended the valuable work done by the retiring News Co-ordinator, Rob Green VK4KUG. He commented on the enormous amount of time and effort that, each week, went into the VK4TTY News Broadcast. This Broadcast has been acclaimed as the best RTTY news in Australia and in recognition of his efforts, Rob was awarded Life Membership of the Group.

BARCFEST 1986

BARCFest 1986 will be held again this year on the 10th of this month. Dave Prince VK4KDP, urges those amateurs who will be attending the fest to make it a family affair. The venue is the Indooroopilly State High School, Ward Street, Indooroopilly, from 9am to 4.30pm. There will be lectures, displays (amateur and non-amateur), home-brew contests and disposals. Parking is no problem and admission is \$2 for a family.

AR

QUEENSLAND DIVISIONAL COUNCIL FOR 1986

As only 10 members nominated for council, these members were duly declared elected at the February Annual General Meeting of the Division. At the March Council Meeting, the Council sorted themselves out and various duties were allocated as follows:

President — David Jerome VK4YAN
Senior Vice-President — John Aarsse VK4QA
Secretary — Theo Marks VK4MU
Treasurer — Paul Newman VK4APN
Assistant Secretary — Val Rickaby VK4VR
Service Liaison — Val Rickaby VK4VR
WICEN Co-ordinator — Ken Ayres VK4KD
Assistant WICEN Co-ordinator — John Aarsse VK4QA
Research Officer — Dennis Breitkreutz VK4KEW
Club Liaison Officer — Bill Dalgleish VK4UB
Inwards OSL Manager — Hugh Swan VK4BHS
News Editor — Bud Pounsett VK4QY

SOUTH EAST QUEENSLAND TELETYPE GROUP

The group also held their Annual General Meeting recently. The executive elected to office were:



QSP

A NEED TO TAKE CARE

Amateurs are reminded that, when selling transmitting equipment, always ensure you sell to a licensed radio amateur operator. The following notice was received on a Bulletin Board by a concerned member and shows the quandary this practice can cause. The article is printed as received.

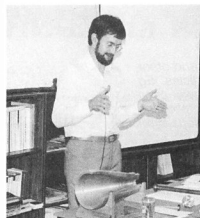
help needed please!
all users,

i have just purchased some amateur radio equipment and i don't have a clue about how to use it.

it is as portable system yasu running on 2m i don't understand 'repeater stations' or 'simplex' etc.

do i need a licence?
how do i connect it to my computer?
can i receive satellite transmissions?
data transmissions?
what are call signs?
can somebody please help me?

Always remember, sell amateur transmitting equipment to licensed amateurs only!!



Doctor Trevor Bird from the CSIRO, spoke to the Seminar about Satellite Antennas.

1984 SEMINAR

Roger Harrison VK2ZTB — A look at the future direction of amateur radio.
Jim Swetlikoe VK2BVD — Packet radio, the Vancouver system.
Colin Oliver from DOC Canberra — The New Radio Communications Act.
Lyle Patison VK2ALU — Moonbounce.

1985 SEMINAR

Les Grant VK2KYJ and Barry White VK2AAB — Packet radio, 10 months on (from the 1984 lecture by VK2BVD).
Jeff Pages VK2BY — Doppler direction finding.
David Wardlaw VK3ADW — The WIA and its 75th anniversary year.
John Milton, State Manager for DOC — The Department in VK2.

1986 SEMINAR

Colin Christiansen VK2BCC/VK0CC — A talk on his 1985 trip to Heard Island.
Roger Harrison VK2ZTB — Future direction of amateur radio.
Gordon McDonald VK2ZAB — Aircraft enhanced DX signals on VHF/UHF.
Trevor Bird, from CSIRO — Antennas for satellite communications.

The next Seminar is expected later in 1986. If any member would like to present a talk, or alternatively, has a subject or topic he/she would like discussed, please contact the Divisional Office.

AR

VK3 WIA Notes



WIA VICTORIAN DIVISION

412 Brunswick Street, Fitzroy, Vic. 3065

NEW MEMBERS

The Victorian Council of the WIA would like to welcome the following new members who joined during the month of February.

John Abram; W Bradford; David Cain VK3XMK; Janusz Orzymuski; Phillip Falter; Harold French VK3ZFM; Mike Hurrell VK3XMK; Ronald Janson SWL; Ben Kelford; Phillip McMahon VK3PJO; George McManus; David McMe VK3BDO; Peter Maberly-Smith VK3QFC; Trevor Mitchell VK3CUP; Barry Ridgeway VK3VBR; Friedhelm Rode VK3AFR; Pamela Rohrlach; Phillip Yap and Murray Young SWL.

AR

TECHNICAL SYMBOLS

From time to time Amateur Radio magazine and other radio magazines use symbols in technical articles. Eg The capital letter of Omega is used for ohms, lower case Lambda is used for wavelength. It is hoped the following article may explain to newcomers what the various symbols mean.

The Greek Alphabet is given for reference, as many Greek letters appear in Technical Texts

Letter

Small	Capital	Name	English Equivalent
α	A	Alpha	a
β	B	Beta	b
γ	Γ	Gamma	g
δ	Δ	Delta	d
ϵ	E	Epsilon	e (as in "met")
ζ	Z	Zeta	z
η	H	Eta	ee (as in "meet")
θ	Θ	Theta	th
ι	I	Iota	i
κ	K	Kappa	k
λ	Λ	Lambda	l
μ	M	Mu	m
ν	N	Nu	n
ξ	Ξ	Ksi	x
\omicron	O	Omicron	o (as in "olive")
π	Π	Pi	p
ρ	P	Rho	r
σ	Σ	Sigma	s
τ	T	Tau	t
υ	U	Upsilon	u
ϕ	Φ	Phi	ph
χ	X	Chi	ch (as in "school")
ψ	Ψ	Psi	ps
ω	Ω	Omega	o (as in "broke")

Specific Inductive Capacity or Dielectric Constant	K
Electrostatic Field Strength	X
Electrostatic Displacement or Flux Density	D
Electrostatic Flux	ψ
Capacity	C
Magnetic Pole Strength	m
Permeability	μ
Magnetic Field Strength	H
Magnetic Induction or Flux Density	B
Magnetic Reluctance	S
Magneto Motive Force	G
Self Inductance	L
Mutual Inductance	M
Impedance	Z
Susceptance	B
Admittance	Y
Base of Napierian logs	e
Damping Factor	α
Logarithmic Decrement	δ
Mutual conductance	gm
Amplification factor	μ or A
Percentage modulation	N
Coil amplification factor or Q factor or other active devices ($\omega L/R$)	Q
Velocity of EM Waves	c

Prefixes for Multiples and Submultiples of Quantities

Multiple or Submultiple	Name	Prefix
10^6	Mega-	M
10^3	Kilo-	k
10^2	Hekto-	H
10^1	Centi-	c
10^{-1}	Milli-	m
10^{-2}	Micro-	μ
10^{-3}	Nano-	n
10^{-6}	Pico-	p
10^{-9}	Atto-	a

Symbols for Quantities for Use in Electrical Equations, etc.

Quantity	Sign
Length	l
Mass	m
Time	t
Angles	θ, ϕ
Work or Energy	W
Power	P
Efficiency	η
Period	T
Frequency	f
2 π x frequency	ω
Wavelength	λ
Phase displacement	ϕ
Temperature, Celsius	t or θ
Temperature, absolute	T or Θ
Quantity or charge of electricity	Q
Current	I
Voltage (EMF or PD)	E or V
Resistance	R
Specific Resistance or Resistivity	ρ
Conductance	G
Specific Conductance or Conductivity	γ

Signs for Units Employed after Numerical Values

Unit	Abbreviation
Ampere	A
Volt	V
Ohm	Ω
Coulomb	C
Joule	J
Watt	W
Farad	F
Henry	H
Watt-hour	Wh
Volt-ampere	VA
Ampere-hour	Ah
Kilowatt	kW
Kilo-volt-ampere	kVA
Kilowatt-hour	kWh
Decibel	dB

Five-Eighth Wave



Jennifer Warrington VKSANW
59 Albert Street, Clarence Gardens, SA. 5039

Last month, it was decided by Council that due to the lack of space in our VKS Insert, the President's Notes should be incorporated into *Five-Eighth Wave*. "Good", I thought. "That will be less for me to write". Some hope, guess who is Acting President this month whilst the President has been working in Alice Springs? Still, a couple of metropolitan clubs did come to my rescue with reports on their AGMs.

ADELAIDE HILLS ARS INC

The Adelaide Hills Amateur Radio Society Inc have sent word of their new Officer Bearers.

President is Marshall Emm VKSFM (of Pounding Brass fame), Vice-President is Hans Smit VK5YX, Secretary Gordon Walsh VK5KGS, and Treasurer is Douglas Head VK5NDH.

They would also like it noted that their address for the club is now PO Box 401, Blackwood, SA. 5051, and new members are always very welcome at their meetings on the third Thursday of each month — 7.30pm, Uniting Church Hall, Blackwood Roundabout.

The Society also run Novice Courses, details of which are available from Hans VK5YX.

I would also like to thank the Club for taking on the organisation of a Display Station at Mitcham Rotary Club's Leisure Activities Day, on Sunday, 4th May, in the John Creswell Hall. Pop along and say Hello!

SOUTH COAST ARC

The South Coast Amateur Radio Club has also had a re-shuffle of its hierarchy at its Annual General Meeting. The Committee for 1986-87 is as follows:

President, Russell Smith VK5KAK; Secretary (no nominations at date of writing — all offers welcomed); Treasurer, Viv Lohmeyer VK5AVL; Components Manager, Neville Pudney VK5ZHP; Publicity and QSL Manager, Rob Durbridge; Newsletter Editor, Barry Blaby VK5TC.

Their main activity has been the building and setting-up of the RTTY repeater, a first in South Australia. Those singled out for special mention include Nick VK5NT and his wife Diana, Graham VK5AGA, Bernia VK5ABS, Neville VK5ZHP, Mike VK5AMT, Peter VK5ZM, Alan VK5KAL, Bob VK5KNE, Lee VK5NK, Clem VK5GL and Craig VK5ZAW.

Not all of these were club members but all helped in some way.

Also, I am sure that the Club would like me to thank John Gill VK5AJG, who has been their President and Newsletter Editor for several years now. John has always been very conscientious in both positions and a good liaison between the Club and the WIA. I am sure you will be missed, John.

They are also pleased to welcome visitors and new members to their meetings on the first and third Thursdays of each month. Time is 7.30pm at the Karawatha Community Centre, 12 Baden Terrace, O'Sullivan Beach.

DIARY DATES

Tuesday, 27th May — General Meeting of the WIA VK5 Division. Speaker will be Barry Bryant VK5KAU, speaking on the Central North Amateur Television Repeater — its history and technical details, with video and/or slides to illustrate it.

AR



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AR86

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BOONTON, B W D, BRUEL & KJAER, GENERAL RADIO, FLUKE, ATC, etc.

WE SERVICE WHAT WE SELL



Over to You!

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

ON THE STAGE? — NAY, A RADIO AMATEUR

In the March edition of Amateur Radio, page 55, under the heading of *Inaugural Meeting*, a photograph of the South West Zone of the WIA, NSW Division was displayed.

Pictured there was the former President, Jim Corbin VK2YK, and I was sad to note that he was a Silent Key. The contribution was made by Jim Edge VK2AUJ.

When I was a boy, living in the Sydney suburb of Eastlakes, Jim was our family's chemist in the late 40s and early 50s. I knew his younger son, Vince, well and I told that his dad was a Ham.

I must admit I was confused, I could not imagine a rather sober and methodical man as Mr Corbin being an actor and I said as much to his son. He then said, "No you fool" or words to that effect and went on to explain that his dad was an amateur radio operator and talked to people "all around the world".

As a young teenager then and believing that talking was the God Given Right of all people of my age group, I was very impressed. One had an opportunity of talking to the world and it appeared that very few had the facility of talking back — an advantage that I liked at once.

I spoke to Jim (from the other side of the counter — that is Mr Corbin) and he indicated that much of his transmission was CW. I then pondered the vagaries of Morse and the allocated bands propagation, potential. At that time, I put this on the *Too Hard File*, but the seed was sown.

Many years later, I potted around and finally I too became a Ham and I think I have Jim Corbin to thank for it. He likened the attainment of the qualification to a combination of the properties of Captain Marvel and a standing invitation to Camelot (and quite rightly too).

I would be grateful to Jim Edge or any other members who can tell me what happened to Jim and his family after Eastlakes. Did any of his siblings follow in his footsteps?

Yours faithfully,

Peter Jackson VK4ZP
347 Monaro Street,
Broadbeach Waters, Vic. 4217.
AR

ENLIGHTEN OR ENLIVEN

Referring to Tony Tregale's letter and the editorial reply in the March issue of AR, Tony has raised an important issue and his argument deserves more consideration. The Amateur Radio Movement is threatened by a developing authoritarianism in organisations formed from minority groups belonging to the Amateur Radio Movement. I offer the following to enlighten or enliven the discussion.

The Amateur Radio Movement is not intangible; it comprises persons whose object is the art of amateur radio communications. Some members of the ARM choose to participate in the International Amateur Radio Service as defined in Article 1 of the ITU Radio Regulation. These amateurs are united by the ITU definition, their licence qualifications and the international agreements and national laws which regulate their use of the amateur radio spectrum allocations. These laws and agreed regulations prevent anarchy by amateurs in the radio spectrum; this is the only effective protection.

Some of the licensed amateurs (a minority worldwide and about 50 percent in Australia) choose to belong to national organisations such as the WIA. These organisations provide a service for their members and foster an awareness of the Amateur Radio Service among national communities. They do not and can not control the ARM.

A majority of the ARM choose not to belong to a representative organisation. There is no

compulsion to belong (except in a minority number of countries) and it is not necessary to belong to participate. Amateur radio is one of the few spare-time occupations which does not require facilities provided by a supporting club, league, institute, etc. (The pitch is self-maintaining natural resources; bring your own equipment and there will always be players, 24-hours, every day). This fact is the reason amateur radio attracts many independent participants and the existence of these is an insurance against an ascendancy of authoritarian organisations with a preference for the power of numbers rather than competent service. The ARM is not leaderless, the directions are clearly indicated by people with talent who realise that leaders are for the benefit of the followers and not vice-versa. These same leaders have founded an administration which makes it easy for genuine amateurs to do what they want to do. The great danger is the possibility of being misled by the proponents of unplanned changes.

Representative organisations, in their occasional recruiting campaigns, use the argument that representations made to them by the administration are more effective. This is fallacious, an individual acting outside the party line has many more avenues available than the organisation and these can be more direct and more effective if a particular issue has to first run the gauntlet of organisation officialdom. If an administration accepted group representation only, it has to determine firstly whether or not the proposal is supported by a majority of its membership and whether or not the organisation membership is a majority of the interested persons. How does the WIA determine the popularity of its proposals? Secret ballot? Any other form of democratic canvassing? Decision by the Executive acting without consulting members?

The campaign of shaming independents into membership is not 75-year-old wisdom. The ARM needs a good population of independents, they are not free-loading and it is insulting to suggest that they are. They are not cajoling us to forego our group activities.

The future of amateur radio does not depend on the activities of supporting organisations. Doing something for the love of it is a human characteristic and people will be radio amateurs for the love of it, with or without the support of a representative organisation.

Yours faithfully,

Lindsay Lawless VK3ANJ,
Box 112,
Lakes Entrance, Vic. 3509.
AR

FOOD RECIPE COOK BOOK

I am replying to Glyn Gibbings-John VK2DJV, whose letter appeared in this column of the March edition, and whose comments may have puzzled many readers.

In order to clarify the matter, it is obvious that Glyn ordered and obtained the Cook Book produced by the Wagga Wagga Amateur Radio Club, through Dave VK2ZVE, with no misunderstanding that it was of a technical nature, but in fact turned out to be a food cook book.

What he should have done was to write to Dave and explained his disenchantment and his money would have been refunded.

This letter is written, not to vindicate the allegations, but to inform other readers of the facts.

Around last July, I wrote the VK2AXH Cook Book, of which Westlakes ARC had 1000 copies printed, for sale at the price of a schooner of beer or a packet of cigarettes which was considered good value. One VK6, on holidays here took 10 copies home with him.

At the time of writing there are only 97 copies remaining.

It was coincidental that, around October, the Wagga Radio Club produced their excellent food recipe Cook Book, edited by Dave VK2ZVE. I obtained a copy and wrote back congratulating the Club on the marvellous team effort, as no less than 70 amateurs, family and friends contributed their combined recipes.

Large radio clubs have high overhead costs, financed by memberships subscriptions. In order to keep these annual subscriptions at an affordable level other finances are augmented by various functions — selling raffle tickets and cook books.

It is regrettable in Glyn's case, that the misnomer and incorrect idiom caused a lack of correct communication, and it might well be that concept of the word wombat in the Metropolitan areas differs to the marsupial found in rural Bingarra!

Les Daniels VK2AXZ,
9 Highland Terrace,
Cardiff Heights, NSW. 2265.
AR

POLAR RADIO

After reading the interesting article by Tony Smith G4FAL, about Mawson's Polar Expedition, I delved into my old QSL cards to find one from Wally Hannam VK2AXH, who was Mawson's main base wireless operator and mechanic.

In his book, Mawson mentions Hannam repeatedly and on page 87 he says, "Hannam had various occupations, but one was to attend to the needs of the inner man, until the completion of the hut. There is no doubt that he was regarded at this time as the most important and popular member of the party".

GOLDEN ANNIVERSARY

CARD OF VK2AXH

FOUNDER OF THE WIRELESS INSTITUTE OF AUSTRALIA 1940
FIRST LICENSEE 1926

TO RADIO VK2AXH.

COMMEMORATING 50 YEARS

ON 3 APRIL 1926

YOUR SILENT 5 1 8

WARRING FOR 50 YEARS

DATE 26-5-79

W. H. HANNAM

WARRING FOR 50 YEARS

DATE 26-5-79

W. H. HANNAM

WARRING FOR 50 YEARS

DATE 26-5-79

W. H. HANNAM

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DATE 26-5-79

W. H. HANNAM

WARRING FOR 50 YEARS

DATE 26-5-79

W. H. HANNAM

WARRING FOR 50 YEARS

DATE 26-5-79

SN Jeffries relieved Wally during 1913, but many Old Timers in Sydney will remember VK2AXH.

I don't think that any signals were ever received in Melbourne but the story goes that a wag in Melbourne pretended that his signals came from Mawson with a message to the Governor that, "Douglas Mawson had climbed the South Pole and got a splinter in his toe".

73.

Keith Ballantyne VK3AKB,

"Staverton",

Quamby Road,

Beaconsfield Upper, Vic. 3808.

AR

POLAR RADIO

I was most interested in the article on page 17 of Amateur Radio for the month of March, 1986, titled: *Polar Radio for 1912 style*.

On page 19 is shown a picture captioned: *The station on Adelle Land*.

What you apparently did not know and neither did the author, G4FAL, was that this was a picture of Wally Hannam, then 26-years of age, for many years and up until the date of his death, the holder of the call sign VK2AXH. Wally Hannam lived in retirement at Hillcrest Road, Terrigal, New South Wales, where I met him in 1959, when he was about 74-years of age. Wally presented me with one of his QSL cards, which stated on one side that it

was the "Golden Anniversary card of VK2AXH, founder of the Wireless Institute of Australia 1910, first license 1909".

On the other side of the card is the same picture as in Amateur Radio, endorsed with the words "the picture shows VK2AXH (Wal) in the Antarctic 1912". (No doubt for me for "personal contact 29-5-59".) (No doubt a number of older amateurs probably have a copy of this card also). The picture, by the way, was taken by the famous Australian photographer, Frank Hurley, who was also a member of the expedition.

GOLDEN ANNIVERSARY

CARD OF VK2AXH

FOUNDER OF THE WIRELESS INSTITUTE OF AUSTRALIA 1910
FIRST LICENSE 1909

TO RADIO

CONFIRMING G.S.O.

ON MCS

YOUR SIGS G

MARKS FOR G.S.O.

DATE

W. H. HANNAM

10 RIVER ROAD
SYDNEY, N.S.W.

Personal Contact

24-5-59

Handwritten signature

Wal was a member of the original Sir Douglas Mawson Expedition which left Hobart in the AURORA on 2nd December 1911, for the Antarctic. A base was established on Macquarie Island, after which the ship pushed through the ice and landed a party on an undiscovered portion of the Antarctic continent.

Wal Hannam was responsible for the choosing of the wireless station site at Macquarie Island, known as *Wireless Hill*, which rose to 350 feet in height and formed part of a peninsula running in a north-easterly direction from the main island. It had been chosen by Wal because of its open southern aspect, and because the site would probably have a good throw-off south to the main base in Antarctica. This fact was clearly acknowledged by Sir Douglas Mawson in his account of the expedition which he published in 1915. Wal also built the hut for the radio equipment and a separate one for the petrol motor and generator, and set-up the radio station at the main base at Adelle Land, (see map AR, p18), and here operated the station for two summers and one winter before returning to Australia. He was also assistant magnetron for a time.

The operator referred to in the article, S.N. Jeffries, was the wireless operator who relieved Wal Hannam in Adelle Land. He joined the further sailing of the AURORA which left Hobart on 26th January 1912, to return to the Antarctic. Wal left Adelle Land on 6th February 1913, and returned to Australia. Both Jeffries and another operator, A.J. Sawyer, were employed by the Australasian Wireless Company, who supplied the two complete sets of the Telefunken wireless apparatus used by the expedition.

I feel very grateful in being able to bring the above information to the attention of readers, showing that the pioneering spirit of amateur radio in Australia was alive and well as evidenced by the work of Wal Hannam, and such spirit helped to further scientific and geographical research in the Antarctic at the beginning of this century.

B.L. Mills VK2AJE,
PO Box 10,
Cronulla, NSW. 2230.

Further information about Wal Hannam was printed in *Amateur Radio*, May 1984, on page 51, when his eldest nephew, John Bathgate (a non-amateur) wrote of his exploits in amateur radio. Prompted by Mr Bathgate's information, *July's* magazine, pages 58 and 59 carried a photograph of the above mentioned card and information that the Redcliffe Radio Club had much photographic memorabilia of the 1911 radio shack at Cape Denison, which it was having transposed into acceptable black and white photographs which would be suitable for reproduction in AR. — Ed. AR

QUALIFIED COMMENT

Having had some association with Federal WIA administration and affairs over several years, I feel qualified enough to comment on the nonsense in Tony Tregale VK3QQ's letter in March AR, and

desire to direct my remarks to him via the same mode.

Amateur repeaters, whether WIA funded or not, are by their licensing structure open access.

The WIA, under the terms of its Constitution cannot, has not, and will not suggest other wise. It exists solely for the purpose of the furtherance and improvement of the Amateur Radio Service.

Its administrators are volunteer amateur operators, giving their valuable time freely to help others, members and non-members alike.

To suggest that the WIA promotes discrimination, and gains finance and power, shows an ignorant and complete lack of understanding of the real facts.

For many years, the WIA has struggled to achieve the benefits which Australian amateurs currently enjoy, and it has only been able to obtain these benefits through sheer determination, and the financial backing of its members.

WARC 79, Novice Licenses, Amateur Examinations, K-calls, the Government recognition of WICEN, the retention and expansion of Amateur Bands, are just a few examples of the results achieved by WIA volunteers.

Is this the activity of a discriminatory association?

Do you really think the funds raised by its members subscriptions are going to give it power and destroy our original concepts?

Be realistic Tony, recognise the fact that without a continuing recruitment campaign, and injection of funds to its activities, the WIA will not be in a position of unity to combat the commercial interests that want our bands, nor finance projects such as Repeaters, Amateur Satellites, Educational Classes and Facilities, and WICEN Equipment.

The next WARC is only just around the corner. WARC 79 cost the WIA over \$200,000 for its representation, paid for by members funds — not Government grants, or donations, just WIA members.

Look at what it achieved! Nobody knows what will happen at the next WARC but you can bet the last WIA dollar that it will be there. We cannot afford not to be!

These are the facts Tony, and if members of the Amateur Radio Movement feel justified in not helping themselves through WIA membership, then they have no one else to blame if more powerful commercial interests succeed in reducing the hard won benefits previously obtained.

Yours sincerely,

Bruce Bathols VK3JUV,
6 Ann Court,
Aspendale, Vic. 3195.

For the benefit of newcomers, Bruce is a former Editor of AR and a former Federal President of the WIA. — Ed. AR

HOW MANY HAVE BUILT A TRANSMITTER?

After reading the editorial in March '85 AR, I looked up the January issue and there *March Over to You!* and can only feel that Tony Tregale is of the opinion that, in today's society at least, there is a tendency for organisations, or perhaps of some individuals with power within organisations to tend to become self-serving in their outlook, or to make assumptions that what the organisation does is good for all, because the organisation does it. He sometimes has a point there, human nature being fallible. It's good to see he has that view and has also participated in the administration of the activities of the WIA instead of just being an armchair critic.

I also noted the editorial interest in *How many of our newcomers built their own first transmitter?* How many have built their first (or any) transmitter over the last 40 years?

My interest in radio started when I was 13 or 14 years of age, for in 1942 or 43. However, I confined my activities to constructing various forms of receivers until about 1978. In October of that year, a meeting was held at Urunga (North Coast, NSW), which I attended, and it was decided to form an amateur radio club in the general district of Coffs Harbour.

Since my teenage years, I had purchased new, the occasional copy of the ARRL Handbook and I still had a copy of the 1969 edition, purchased for \$6.70, which had a circuit and construction data for a Transistor 5 Watt for 80 and 40.

I had some green plastic plug-in coil formers, bought for possible use in a future receiver years before. As they were only one inch in diameter they fitted the bill nicely. An old ex-FMG telephone box of dove-tailed wood, with a piece of marine ply for the top board, and pieces of tin-plate, cut from food tins tacked to the bottom for soldering components and wire where needed was used for a chassis. I used 12 volts instead of 28.

This unit has proved an intriguing design as it uses a 250 mA pilot lamp to tune the amplifier and a 150 mA pilot lamp to tune the output and has done duty on several club displays since its construction.

The circuit called for two 2N2102 transistors which were unavailable locally, so I substituted RS 2008s, purchased a crystal for 3.530MHz and a Morse key. (I already had a DX 160 receiver). Since then I have had CW contacts in Australia and New Zealand using this transmitter.

I obtained my NACQ licence, VK2CQL, on 28th June 1979 and my AOCIP, VK2DMV, on 10th June 1980.

Other small transmitters I have constructed include the ARRL Sardine Sender 80-metre QRP crystal controlled unit, a VFO from the 1979 ARRL coupled to a HB amp and PA on 80 metres also, and a VFO on 28MHz which demonstrated a new frequency can vary with temperature on 10 metres.

My main interest in radio remains with such home-built projects although I obtained an FT101E in 1979 and have had a lot of interest experimenting with different types of antennas to suit my perceived needs of the time.

I would like to record my appreciation of the WIA Code Practice Sessions, NSW and SA in particular, during 1979 and 1980, and at odd times since when I determined to brush-up. Also thank you to Marshall Emm for Pounding Brass.

With best wishes,

Paul Ireland VK2DMV,
109 Victoria Street,
Coffs Harbour, NSW. 2450.

THANKS WIA

I first became a novice in August 1985, as VK2NLC. I passed my 10 WPM CW in November and then in February I passed the full-call theory.

I used the WIA novice kit and AOCIP correspondence course for study, and listened to the VK5 slow Morse broadcasts also.

I would like to thank the WIA for making these study courses available. Also, many thanks to Cec Gardwell for his constructive criticism. My appreciation also goes out to VK2XJ and VK2PYO for helping me with CW-practice.

Thank you.

Laurie Keane VK2CXX,
80 Hudson Parade,
Clareville Beach, NSW. 2107.

HELP WANTED!

Has anyone any ideas if and where I may obtain a Log Book program for radio contacts which will operate on my Commodore 64.

Regards,

A.M. Stephenson VK4WBZ (soon-to-be VK1UNU),
Box 255,
Wodden, ACT. 2806.

NE'ER A COMPLAINT, BUT...

I do not usually complain about anything, (being 82-years-old and still enjoying a reasonably full life), but I am just a little puzzled about one thing. I refer to the QSL cards I have and have not received from stations I have been in contact with over the past two years.

I always QSL 100 percent and expect others to do likewise, but following is a breakdown of stations:

VK1, six stations worked, one QSL received; VK2-41 contacts, six QSLs; VK3-28 contacts, 10 QSLs;

VK4-24 contacts, eight QSLs; VK5-21 contacts, nine QSLs; VK6-17 contacts, seven QSLs; VK7-seven contacts, two QSLs and VK8-five contacts and one QSL received.

This is a total of 149 QSOs for 44 QSLs, and rates at less than one-third and overseas stations have a similar record. From Japan I have received 100 cards for 300 stations contacted and others — 23 for 62 contacts.

Some stations (real amateurs), reply very quickly, whilst others do not reply at all. This makes it very difficult to obtain awards.

I hope this letter reaches the eyes of the tardies and brings some action — here's hoping.

For the real amateurs I thank you.

May I ask why I don't upgrade to a Full Call. With up to \$70 for examinations fees — no way.

73,

Geo Payne VK4NEV,
12 Thomas Street,
Maroochydore, Qld. 4558.
AR

INSPIRED

I was interested to read the editorial in February's Amateur Radio, concerning technical articles. I have always enjoyed home-brewing and the comments in the editorial inspired me to sit down and describe a VFO that I have been very satisfied with since I built it some years ago.

I enjoy the magazine every month and I think the inclusion of more technical articles can only improve it. Keep up the good work.

Kind regards,

Morris Odell VK3DOC,
84 Hill Road,
North Balwyn, Vic. 3104.

Watch for Morris' article, *A Stable VFO with Digital Readout*, in a future issue of AR. Are there any other members who may take up the challenge and also become inspired? Ed.

AR

POWER LINE INTERFERENCE

I was pleased to see Sam VK2BVS, taking up the Power Line Interference problem.

Although Sam has touched on the main problem, that of *politics*, he has not mentioned this is the main stumbling block to getting action from the authorities.

You see, DOC in Canberra agree in principle (or in theory) that there is equality, ie complaints from amateurs about interference to their reception are treated equally to complaints from other services... However, this is not the case in practice!

DOC State Offices, and Field Officers have been instructed for years that it is DOC policy not to investigate incidental radiation (or any other) interference affecting the reception of authorised radio communications by stations in the Amateur Service.

It is time the WIA (so far the only ones allowed to talk to the DOC) got off their posterior and got on with some positive and effective action on this long standing problem.

Tony Tregale VK3QQ,
38 Wattle Drive,
Watsonia, Vic. 3087.
AR

1985 REMEMBRANCE DAY CONTEST

The Orange Amateur Club was unable to understand how, when five logs are posted in the one envelope to the FCM, only three (DEW, DXG and AQA) appear in the results. The others, ASY-20 and DSM-20, are missing! Surely Australia Post is blameless in this case?

The same applies to BFR and BNH — two in one posting — one listed, one missing.

It is suggested that, as a proof of a log being received by the FCM that a SASE be enclosed with your log. Then the FCM puts his rubber stamp on the back of the envelope and posts it back. No extra work for the FCM — he's going to the Post Office anyway — but confirmation that your log got there.

Wally Watkins VK2DEW,
Honorary Secretary,
Orange ARC,
PO Box 1055,
Orange, NSW. 2800.
AR

AR — FUTURE

With respect to the article in February AR, AR — the Future, I am one of the group that entered amateur radio as a direct result of the CBRS. I obtained my novice licence several years ago, and my limited a few years later. Due to a loss of interest in telegraphy, I am now mainly interested in the VHF/UHF side of the hobby.

When I was a CBER, I always looked at amateur radio and felt that it was too hard to get into, that is, until I was told of the novice licence. Even then I was discouraged by the CW examination. Looking back, I still feel the same, and have always said that a lower amateur class than the novice would have helped. The proposals in February AR is just what is needed to encourage newcomers to this hobby, particularly now that we are in a low part of the sunspot cycle.

A licence, similar to the one proposed, with an exam similar to the current novice theory, but without the CW, would be just right. Then a pass at five words-per-minute would be needed to obtain the current novice licence, as it is now.

If an enhanced version of the current novice is not forthcoming, then a licence between it and the current limited licence, to give the proposed intermediate licence, with its digital type privileges. Finally an extra class between the limited and full class to give all the privileges of the current full licence and a new full class with all the defined mode restrictions removed.

This would encourage new CBERs, and the computer kids to join AR.

Yours sincerely,

Peter Scales VK6KHZ,
B-34, SMO,
Paraburdoo, WA. 6754.
AR

HELP OFFERED!

Some time ago I found it necessary to overhaul my 20-years-old Mosley TA33Jr beam antenna. After some difficulty, I was able to obtain full reconditioning instructions from Mosley, which resulted in *as new* performance. I also still have the original assembly instructions.

If any reader would like to obtain this information I would be happy to provide photocopies at cost, plus postage. If our readers at 25 cents plus 33 cents postage. Four 33 cents stamps will fill the bill.

Best 73,

George Cranby VK3GI,
PO Box 22,
Woodend, Vic. 3442.
AR

DISCUSSION PAPER

I read the *Discussion Paper* and subsequent letters re the future of amateur radio with interest. Combined with the Federal Education Officer's report on the low pass rate for ACPPLA/OCP exams, the situation is disproportionate age groups for licensed amateurs.

In the days of the Youth Radio Club service, sponsored by the WIA, the young were encouraged to enjoy amateur radio in schools, colleges and clubs (such as YMCA) throughout the nation. The instructors were licensed amateurs freely giving their time to the nations youth in the areas where they lived. The provision of certificates at suitable stages encouraged their interest and prepared them for the final objective, an amateur licence. The number of entrants, and indeed the pass rate, for YRCS students was high and they were already indoctrinated with the amateur code.

The demise of the YRCS and the voluntary instruction was replaced by divisional classes run by professional teachers, many of whom were not amateurs and being paid at the full institute rates, their interest may be considered pecuniary. Following the initial CB rush, the numbers declined due to the now central venues and by no means least, the prohibitive cost. This is not to say that the Federal and Divisional Education Officers were not trying, but the regional areas became non-existent as minimum numbers to run a class were not available. In fact, the avenues of access to amateur radio reduced by 90 percent purely on monetary considerations. I argued fiercely against this decision both as a Federal Councillor and State Supervisor for YRCS at a meeting when the

decision was made.

Scores of possible amateurs have thus been lost to us since money, not love of a hobby, has become the key to the amateur ranks.

Let us as amateurs re-establish youth training back in the schools and clubs, look to voluntary teachers and give our time to the nations youth (not take their money), return the skills and enthusiasm which was given to us in our time.

As a Technical Instructor of a large electronics company I offer my time freely in the spirit of amateur radio, but will not sell it, out of respect to those amateurs who gave to me. I believe the WIA has been guilty of neglect to the nations youth thus, ultimately to itself, bringing about the present situation.

I accept that my view may not be popular, or even accepted in some quarters, but it is mine and forwarded as one view of the situation for consideration.

Respectfully 73,

Gerry Preston VK5PI,
13 McGowan Road,
Para Hills, SA. 5096.
AR

From the point-of-view of an historian, may I make a short personal comment on the discussion paper presented by VK3PC and VK2ZTB, February AR.

Under the heading *Demographics of VK Amateurs* the sentence "the many of today's Old Timers started when they were teenagers" may be a little misleading. I have recently researched the 300 amateurs licensed pre-WWII in VK4 and found that the number of teenagers under 17-years among them could be counted on one hand. I also recall being the youngest (aged 17) of those 40 odd who attended WIA meetings in the mid-30s — so the number of teenage amateurs may never have been as high as imagined. It is interesting to note the 52 percent of the present national WIA membership is 50-years of age and over. Most of this group, whose average life span approaches 70-years, would operate on HF stations; something to be remembered in future planning, if balance is to be preserved.

In spite of my distaste for CB, a beginners 70cm Telephony Permit has merit. However, it must be remembered that, as examinations are made easier, the trend will be towards a CB mentality. There will be no home-brewing or experimentation and the technical revolution talked about by VK2ZTB will be bought over the counter and plugged in. In my view, the standard of amateur radio can only be maintained by a mandatory requirement of up-grading.

I have no argument with the authors of this paper when they say, "that digital developments in communication and information systems are the frontier of technology and experimentation". This occurs, the face of amateur radio will be changed radically. The beginner will know no other state of the art and accept it for what it is — but the Old Timer will begin to wonder of the hobby should be given a new name to fit its new image. The long term benefits of enticing those who are concerned with computers, first — radio second — may not turn out to be for the best. We all know that S and T alone have failed to fulfill our basic needs; without strong social bonds the Amateur Radio Service is incomplete and likely to disintegrate.

It might be an idea to ponder a moment on that piece of hardware which is already influencing our technological future — the computer. It is the very simple-mindedness of the computer that enables it to play a significant part in it highly symbolic relationship with humans. We are everything it is not. Human beings, by and large, are motivated, imaginative, intuitive, idiosyncratic, humorous, fanciful, sensitive to values, pragmatic, moral, amoral and capricious, etc. Marvel though it may be, a computer is simply a soulless machine that pays undivided attention to details that would drive a mortal right out of its mind.

My activities as a DXer can be used as an example of the above. In dealing with a pile-up, I can indulge in an endless number of capricious decisions taken in quick order, at will. I can select the loudest signal or choose to ignore it, decide to

reply to a particular *fist* because he sounds like a battler, would answer simply because she calls continually and has become a pest, or choose to ignore her, select another call because it is vaguely familiar — and so on — as the options are endless. All this, through a QRM cacophony of a hundred callers. What computer exists that can be programmed to function in this manner? None!

Another eerie interaction existing between man and the computer is that of affection or hypnotism. It can be demonstrated scientifically that many who work with these machines become beguiled by their qualities, reading a kind of *alter-ego* into their responses. Journalists are a good example, in that the product of their minds transferred to a VDU subtly hypnotises. Man will always be irresistibly drawn by the apparent benefits of new technology for its own sake — a lure that may eventually undo us.

To an historian a study of past events enhances one's ability to predict future trends, but the idiosyncratic and capricious nature of man himself, prevents any scientific determination. Even with the aid of computers and the applied method of qualification to some degree, man must remain forever in the dark. Strange as it may seem, this is probably for the best.

It must be recognised that there is a price to pay for everything and the advance into automated technology has already resulted in a depersonalisation of the operator. In the long term this may not work for the good of the hobby in various ways. It can visualise the situation where unattended stations are licensed and the operators use numbers, not names.

The thought of home-brewing being outlawed and the sharing of HF bands with non-technical operators and machine *moders* who do not sign in international code or voice are anathema to most OOTers. It is not their idea of amateur radio. The hobby needs more technically skilled contributors, not a host of CB-type operators.

The future of amateur radio belongs to youth, but it must be remembered they are only part of the whole scene, consequently, balanced judgments are imperative. The opinions of the 50 percent of VKs who are not WIA members also deserve equal consideration.

It would appear to this writer that our real destiny does lie as much in our own lay hands as in the use of the coercive powers of commercial interests (the CRL licensing proposal is one example). As well, it will be influenced by decisions taken by policy makers around the world. Unfortunately, many of these decisions will turn out to be wrong and worse, irreversible — but that's the way history goes.

If left to our own inclinations, the type of future technology most likely to be accepted by the majority will be one that allows the exercise of maximum personal identity and intimate voice QSOs where the implications behind the spoken word are clearly conveyed.

**Alan Shawsmith VK4SS,
WIA Queensland Historian,
35 Whynt Street,
West End, Qld. 4101.**

I refer to the excellent article by Messrs Jim Linton and Roger Harrison in the February 1986 issue of *Amateur Radio*.

As a member of the WIA since 1980, (Membership No 11599), I would like to add my thoughts to the future direction of the Institute.

There is no doubt that an alarming trend in membership is evident in that the loss of youth and therefore new members, will ultimately result in difficulty in finding future office bearers, and also in the loss of income for the Institute.

The introduction of the Novice licence about 10 years ago resulted in an upsurge of membership, and a further renewed interest in amateur radio would result if the proposals by Messrs Linton and Harrison were implemented.

Let me add the following points in support, firstly, of the proposed Telephony Beginner's Licence.

As pointed out, this gives access to our hobby and is an ideal method of introduction. Subsequently, the enhanced Novice licence would be an admirable aim for the beginner, being a

further step to a full call.

An interesting development over the past few years has been the transition of CB operators to the current Novice licence, interest having been thus stimulated, the progression from Novice to full call has been very satisfying. The introduction of a Telephony Beginners Licence would produce similar results.

We should now ask which are the best methods of approaching young people to attract them to amateur radio. Could our Education Authorities be approached to allow us to stimulate interest by means of talks, and demonstrations of equipment such as shortwave receivers and simple transceivers? In addition we could have demonstration nights at our institute branches, together with seminars, in local council publications. Once interest has been established, we have the potential future members of the WIA.

Let me now comment on the current Novice licence. I believe that the examination is now more difficult than in the introductory stages, and this supports the introduction of the proposed Beginners licence.

Upgrading the current Novice licence to include segments of UHF is commendable. I consider that Novice licence holders have demonstrated their ability to observe the ethics and code of the amateur radio fraternity. I have not heard any abuse of privilege or questionable language during my time on the air.

The Australian Novice enjoys many more advantages than in some overseas countries. But upgrading of the Novice call at present is not only desirable in the eyes of the Novice, but could provide additional frequencies, particularly on 80 metres. The original area provided the Novice with sufficient frequencies to operate without problems, but widespread intrusion by transmitters from fishing boats, for example, has seriously reduced our available frequencies. I have heard as many as six of these transmissions concurrently. These transmissions seem to take place mainly in the Novice allocation. Thus I would support a possible extension of the 80 metre band for Novice operators.

Further, if we do not use all our allocated frequencies (full call operators, too), the authorities will find this an excuse to delete the available frequencies altogether. The 160 metre band is a typical example. Newer transceivers do not include 160 metres in their frequency range, and I firmly believe this band will ultimately be lost to us, unless it is used far more than at present. Perhaps consideration could be given to Novice use of this band.

I accept that the original intention of the Novice licence was to encourage the operator to eventually obtain a full call. This has been achieved by 70 percent of the original Novices, and speaks very highly of those who initiated the Novice call.

However, times have changed and some of us are getting too old to take on study for the full call. The remaining 30 percent, who have not upgraded would welcome a little more latitude.

As for Morse code, I feel that this must be retained at the present level. Eliminating Morse code would be a regressive step. Its loss would be equivalent to having a doctor of medicine unable to perform emergency surgery if required. If in a communications emergency Morse code was the only suitable available mode, it would be damaging to the amateur radio cause if operators had to admit inability to communicate by this mode.

I therefore strongly support the retention of Morse, not necessarily with the proposed new Beginners Telephony licence, but as being mandatory for a Novice or Full call.

I endorse the proposals of Messrs Linton and Harrison and commend them for the effective and concise manner in which they have presented their case. I hope that this letter will contribute to achieving their proposals.

Yours faithfully,

**Ray Lower VK5NLL,
15 Wyatt Road,
Burnside, SA. 5066.**

THANKS FROM MEXICO



The Liga Mexicana de Radio Experimentadores, AC, after careful consideration, unanimously voted to present Sam Voron VK2BVS with the Merito Amateurstico as appreciation for the assistance given during the devastating earthquake in Mexico City on 19th September 1985.

Sam writes, "Many Australian amateurs responded to the news of the Mexico earthquake disaster by relaying health and welfare messages for a concerned community unable to use any other means of reaching friends and relatives in Mexico City. This Award belongs to all who participated in these ventures. Thank you."

STORAGE BATTERIES AND ELECTRICITY SUPPLY

Iron out the peaks in electricity demand, and power stations could be smaller, less expensive, more efficient — see *Amateur Radio*.

This is because, to be able to cope, power stations have traditionally been built with an installed, but mostly unused, capacity between 15 to 30 percent higher than periods of greatest demand.

The trick, therefore, is to not roster the consumer to cook dinner at a scheduled time, but to level the load internally at the station. Levelling the load is not as simple as it sounds — electricity is hard to store. But, faced with increasing costs and environmental pressures, utility companies world-wide are taking a serious look at batteries as one of the means of storing excess capacity in times of low demand and supplying it during peak periods.

Against this background comes the announcement from the USA of a joint venture between the Electrical Power Research Institute (EPRI) and the International Lead Zinc Research Organisation (ILZRO). EPRI is an association representing around 500 private and public US utilities (or more than 80 percent of US electric power production capacity), while ILZRO is the world lead industry's research arm; the proposal is to install and evaluate a 10MW/50MWh lead-acid battery for electricity supply load levelling. With similar ventures planned, or underway, in Japan, France, West Germany and elsewhere in the US, the EPRI/ILZRO program, it is hoped, will demonstrate and verify preliminary research which suggests the competitiveness of such systems compared to the capital and operating costs of additional combustion turbines.

This year we will see the completion of planning and design work, with the fabrication of the battery, at a projected cost of US\$3.5m, to begin later this year for installation and operation in 1988.

A significant amount of the 2 500 short tons of the lead required for the massive battery, equal in output to around 250 000 car batteries, will be contributed through the membership of ILZRO, by Australian lead producers.

Contributed by Earl Russell VK3BER from ELEMENTS, a quarterly review from ALDARZDA.

COMPACT DISC WITH MEMORY

Engineers at the JVC Research Centre are working to produce a compact disc with a memory that can store sounds, images and facts.

The disc looks like an audio compact disc, but has an added personal computer, television screen and a storage capacity 1500 times greater than a floppy disc.

Silent Keys

It is with deep regret we record the passing of —

MR E A BEAL	3rd March 1986	VK5NAB
MR VERN BLACKMORE	26th December 1985	VK5VB
MR ALBERT DUROSE		VK3DUR
MR HAROLD FISHER	11th March 1986	VK5EX
MR ALBERT POELSTRA	7th February 1986	VK4JAB

Obituaries

ALBERT DUROSE VK3DUR

On 23rd January, Albert Durose passed away suddenly.

Originally in the motor trade, Albert, some thirty years ago, joined the staff of Telecom and his interest in communication expanded, and he advanced to Senior Technical Officer 2.

During the late 70s, he studied with TAFE and obtained the Limited and Novice call signs of VK3XAS and VK3VTN. These were combined in the call VK3KBB.

A full call followed — initially VK3DHO, which, 1981, was changed to VK3DUR.

Although comparatively recently ill, Albert was a very knowledgeable operator and further studies continued until his death. Meticulous care in construction was a characteristic and his antennas were models of precision.

Albert was a keen Freemason and when tragic fires and other disasters occurred and the Freemasons formed a Task Force to assist sufferers, communication was frequently needed and Albert was among the first to volunteer. His skill and equipment in providing communications were used in the Macedon area during Ash Wednesday.

He was a founding member of MAFNET — the Masonic Amateur Radio Net and had joined in a similar net operating in America.

Albert's comparatively short life as an amateur had been one of interest, progress and above all service to radio and his fellow man. He will be sadly missed.

Eric Smith VK3CES AR

HAROLD FISHER VK5EX

Harold Fisher VK5EX, of Renmark, a very private person, passed away on 11th March 1986.

Some 10 years ago, it became my privilege to contact Harold Fisher, and as Harold lived in Renmark, and I lived near Adelaide, personal contact was quite rare — we usually met when my wife Jeanne and I were on one of our "Safari's" to play golf and bowls in the Riverland.

"Harold's past is still rather vague to me, I only knew that he was confined to bed, which I understood was as a result of polio and he was forced to live in a controlled environment."

This impediment, and confinement did not in any circumstance, filter through to those he spoke to on-air. I really believe he was the most cheerful person one could wish to speak to — always bright, always an optimist, and invariably engaged in some amateur orientated project, which several friends aided by sending him circuits and radio bits and pieces.

Harold was an inspiration to those of us who are gradually facing "redundancy", — despite all his difficulties and restrictions, I

can honestly say I never heard one word of protest or despondency. What an example in this modern world full of trials and tribulations!

For the past six years, fellow amateurs VK5s ZP, ACJ, AJN; AHK and VG, plus the operator, have been an early morning ached with Harold on 80 metres, and Harold was always there first waiting for the early morning 'cheerio', and, as with many other contacts, he had in similar circumstances both local and inter-state, these daily get-togethers cemented a firm friendship, and I am quite sure could have in some small way, contributed to prolong Harold's tenuous hold on health.

Vale Harold — you will be sadly missed by those friends of yours in the amateur fraternity. You were a superb example of amateur comradeship and fortitude.

John Thompson VK5XT
* There may be factors in Harold's life that require amplification, and I invite further comment from those who may know more of Harold's early days. AR

ALBERT POELSTRA VK4JAB

Albert lived in Bundaberg and was a very competent white stick operator. He passed away on 7th February 1986.

Albert obtained his Novice licence in mid-1983 and in later 1984 achieved his LAOP. All theory study was done using Braille and regulation were from tapes. He did not consider his blindness to be a handicap and showed great strength and determination while studying and could always find ways to overcome any difficulties he encountered.

He had been blind for 19 years as a result of disease and malnutrition suffered whilst a prisoner-of-war in Burma during World War II. Albert was one of the many prisoners who worked on the infamous Burma Railway.

He was a keen card player, using cards marked in Braille and enjoyed weaving cane baskets and other items. He exchanged tapes with his mother until the time of his death.

Albert's motivation was an inspiration to all who knew him and his cheery voice is sadly missed on the bands.

Sincere sympathy is extended to his wife and family.

Roley Norgaard VK4AOR, Graeme Whitehead VK4NEY and the VK4 Disabled Persons Radio Club, via Roley VK4AOR. AR

VERN BLACKMORE VK5VB

Vern (The Admiral) Blackmore passed away on 26th December 1985, after a very long period of painful ill health. Vern was a Master Builder/Stone-mason and had worked on some of the most famous of Adelaide's buildings, including Parliament House.

He became interested in amateur radio in the 1950s, and as he did with all things, enthusiastically embraced his new hobby.

Having no formal training and a minimal education, Vern doggedly studied for the examination, passing first the Limited, and later received the call sign VK5VB in 1962.

A lack of technical training was compensated by a very determined experimental bent — Vern was a very active VHF experimenter, a pioneer in the use of Helical whips, and would entertain no other antenna than the Cubical Quad. One of these was a very prominent landmark in the Adelaide suburb of Klemzig for many years.

Vern's interest in amateur radio was to pay off in later years when severe diabetes forced his retirement from the building industry. He applied for and was accepted to the position of Radio Tradesman at WRE, where he translated his Stone-mason's discipline to produce beautiful electronic equipment.

His nickname came about during the Great Depression when, out of work he built a fishing cutter and supplemented the larder by fishing in St Vincent Gulf. I think all of his friends will remember the sailor's hat behind the wheel of the boat going to some exciting place.

Brian Warman VK5BI AR

SOLAR GEOPHYSICAL SUMMARY — JANUARY

Solar activity was low and the Solar disc was without significant regions until the 13th when a region began to grow rapidly. This was associated with a sharp increase in the 10cm Flux levels, which peaked at 83 on the 16th. The region rotated over the west limb. On the 17th, Solar activity was again low, the disc without spots until the return of the region on the 30th. This brought another rapid increase in the 10cm Flux levels.

The 10cm readings for the month were: 1=69; 2=70; 3=71; 4=72; 5=73; 6=75; 7=74; 8=75; 9=76; 10=77; 11=77; 12=77; 13=77; 14=79; 15=78; 16=83; 17=77; 18=76; 19=73; 20=72; 21=72; 22=70; 23=64; 24=69; 25=69; 26=70; 27=69; 28=72; 29=73; 30=76; 31=79. Average was 73.5 and the Sunspot average was 2.3.

The running yearly average was 16.9 for July 1985.

GEOMAGNETIC

1 January The field was at mainly active levels until 1700 UTC and then unsettled. A=18.

7 January The field was at minor storm level until 1400 UTC. A=25.

21 January The field was at active levels between 1300-2100 UTC. A=18.

23 January The field was at active levels after 0900 UTC. A=15.

25 January The field was at mostly minor storm level. A=24.

27-30 January The field became disturbed early on 27th and was at storm levels from 0900 to 1800 UTC, then active to storm levels for all of the 28th. It then subsided to unsettled levels on 29th and 30th. A=35, 33, 16, 14, 8.

Most of the disturbances in January were relatively weak, the exception being from the 27th until the 30th. During this disturbance, the active A index rose to 35 on the 27th and to 33 on 28th. This follows the 30-31st December event as part of a new recurrent sequence. A further severe disturbance was to be expected on 22-25th February.

The were eight days of A15 and over with the quietest days being 13 and 19th with A2. The average A over the past six months was 12.12.

Details next month of the event of 8th February, which produced an A of 298, believed to be the largest since the 60s.

From data supplied by the Department of Science IPS Radio and Space Service — January 1986.

AR

AUDIO CASSETTES

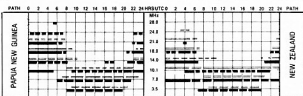
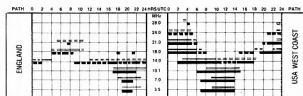
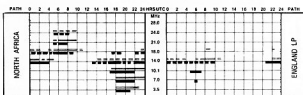
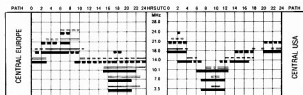
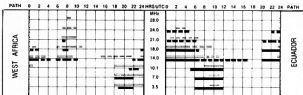
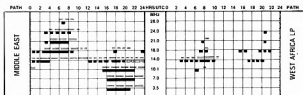
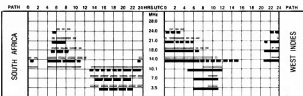
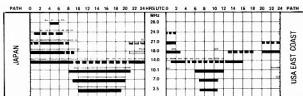
The standard audio cassette is due for a digital revolution with its size cut in half, up to two hours of taping capacity and a comparable purity of sound to the Compact Disc.

Engineers at JVC in Tokyo, are adding the final touches to the latest technological development — the Digital Audio Tape.

The Digital Audio Tape and Digital Cassette Recorders and Players could be available later this year.

Ionospheric Predictions

Len Poynter VK3BYE
14 Esther Court, Fawkner, Vic. 3060



LEGEND

From Western Australia (Perth)

From East Australia

Better than 50% of the month but not every day
 (continuous) lived

Less than 50% of the month (short broken lines)
Mixed Mode Dependent on angle of radiation
(long broken lines)

Paths unless otherwise indicated lie:
LP = long path; all paths are short path.
Predictions reproduced courtesy of the
Department of Science and Technology,
Ionospheric Prediction Service, Sydney.
All times in UTC.

North American Listings



The only publication listing licensed radio amateurs throughout the world, since 1901

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... "Without modesty, the best transceiver". That's how Amateur Radio Action magazine described this superb radio! And when you consider the features, you'll see why. All mode AND all WARC HF bands are built-in. Provides 100W continuous power output on SSB/CW/FM. There are twin VFOs, 8 memories and Yaesu's famous IF shift/width passband control. Plus many other superb features which turn any amateur into a professional.

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